The area of
Tongatabu, however, probably does not exceed 150 square miles, which on 161
the basis of full-blooded Tongan population, in 1921, gives the average of 65 162
individuals to the square mile, a number probably sufficient for communica- [131]
tion in the traditional way, if the bulk of the population fringed the ancient [491]
highway which ran from end to end of the island. It should be borne in [361]
mind that the ancient population lived largely on farms rather than in villages. [764]
Ancient burials are to-day found in the bush where farms once flourished.

Cook (19, vol. 1, p. 297) mentions an assemblage at an entertainment 175
on Tongatabu Island, concerning which "some of us computed, that, at this 161
time, there were not less than ten or twelve thousand people, in our neigh- 162
borhood; that is, within the compass of a quarter of a mile; drawn together, for the most part, by mere curiosity." Providing the total is not overestimated, this statement would seem at first glance to indicate a larger population for Tongatabu Island than that of the present day. But many people from neighboring islands of Tongatabu and from Haapai and Vavau were doubtless present. In reference to the population of the islands near Tongatabu in 1797 the following quotation from Wilson (65, p. 95) is pertinent: "Passing to the northward of Eoo-äije, we steered W.S.W. to the entrance, then W. by S. and W. up the harbour, followed by the above canoe and several others, which put off from the eastern part of the main island and the islets that lie scattered upon the reef."

The statement of Cook (19, vol. 1, p. 246) that "at least three thousand people" assembled at the entertainments on Lifuka Island indicates a population in 1777 no greater than in 1909 when Lifuka and the neighboring islands Foa and Haano had a population of 3,565. With the rest of Haapai to draw upon as well, a crowd of three thousand people might be assembled readily enough. Cook's description of the island of Mango suggests that the population in 1777 did not much exceed the population of 42 individuals in 1906 and it is of interest to note that he found Uoleva Island, just south of Lifuka, as destitute of inhabitants as it is to-day.

The grouping of people in villages and the consequent desertion of farms 175
as residences has taken place probably since 1773, when Cook (18, vol. 1, 162
p. 213) described the country as follows: 361

> The produce and cultivation of this isle [Eua] is the same as at Amsterdam [311]
> [Tongatabu]; with this difference, that a part only of the former is cultivated, whereas [491]
> the whole of the latter is. The lanes or roads necessary for travelling, are laid out in so judicious a manner, as to open a free and easy communication from one part of the island to the other. Here are no towns or villages; most of the houses are
> built in the plantations, with no other order than what conveniency requires; they 342
> are neatly constructed, but do not exceed those in the other isles. The materials of 175
> which they are built, are the same; and some little variation in the disposition of the framing is all the difference in their construction. The floor is a little raised, and [352]
> covered with thick strong mats; the same sort of matting serves to inclose them on

[TEXT CONTINUED ON PAGE 7]

1: Gifford E-4,5 (1920-1921) 1929 OU9 Tonga OU9

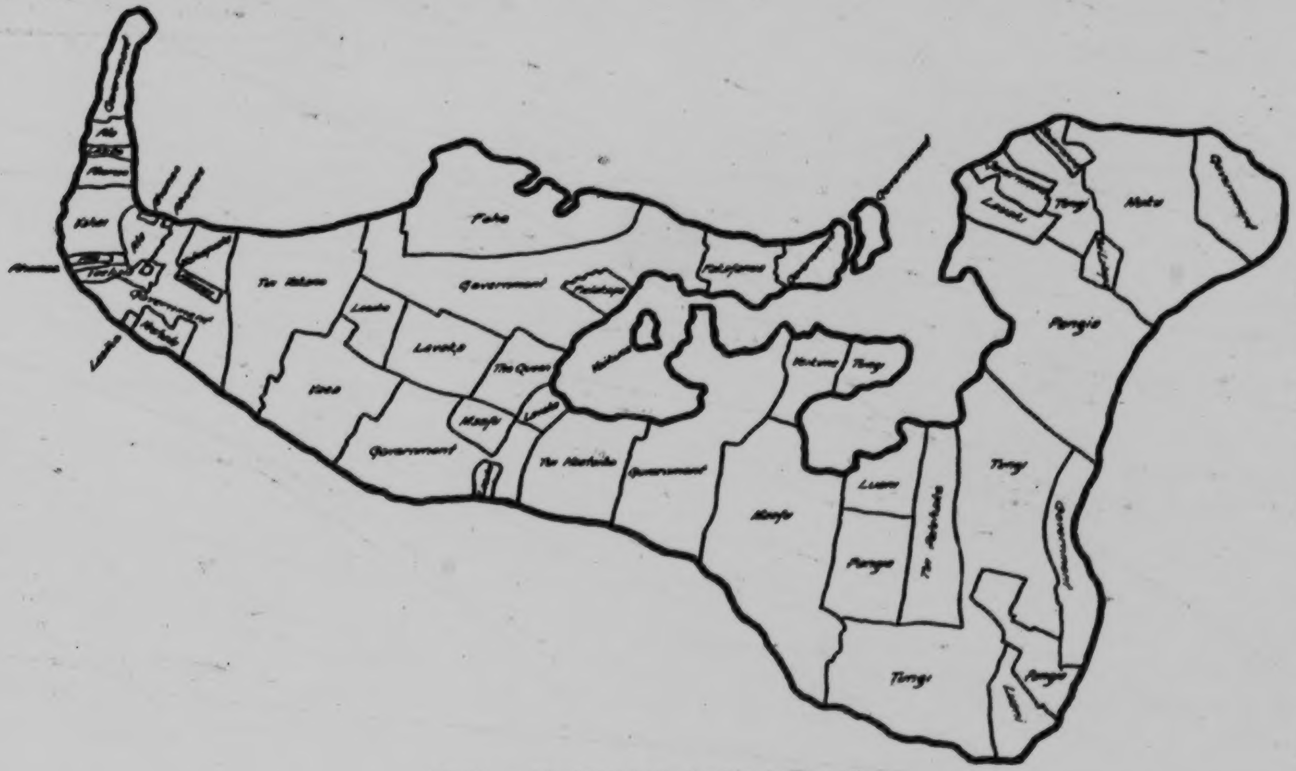

Government
Lavaka
The Queen
Vaea
Maafu
Government
Government
Maafu
Tungi
Luani
Tungi
Government
Tungi

FIGURE 4.—Hereditary lands of nobles in Tongatabu.

102
423
131
643
622
103

[Tofua, Late, and Ata Islands]

Early voyagers speak of Tofua as inhabited. An old woman, living on 162
Kotu Island in 1920, was the last inhabitant of Tofua. She was removed 888
by force by her relatives, who feared she was becoming too old to care for 602
herself and that the dogs might eat her if she became disabled. 825

Late Island, a volcanic cone lying west of the coralline Vavau group, 162
was formerly inhabited. The Late people and their descendants now live [133]
on Hunga Island in the Vavau group. Late served at times as a place of [166]
refuge for political exiles. Fukofuka, a Vavau chief, who incurred the disfavor [727]
of a great Vavau chief, presumably Ulukalala, fled there and sought in vain to oppose the troops sent for him.

The people of Late seem to have had a quarrel of long standing with 628
the people of Moungaone Island, in Haapai, for each group seems to have
attacked the other at times. The fortress of Amaka on Late was built for [712]
refuge against Moungaone raids. The chief of Late bore the title of Toto- [622]
late. There is one at present. He was appointed by the Tui Kanokupolu.

ATA ISLAND

My data as to the settling of outlying islands are by far the fullest 131
for Ata Island, lying about ninety miles south of Tongatabu and in latitude
22° 20′, almost at the tropic of Capricorn. Like Toku, Ata was a haven of [166]
safety for the certain political refugees. [727]

Ata was discovered and named Pylstaarts by Tasman in January, 1643, 177
while he was voyaging northward from New Zealand to Tonga. No mention 175
is made of signs of inhabitants and presumably it was not then occupied. [162]
Tongan tradition makes the peopling somewhat later. [173]

By 1791 Ata was inhabited. Thomson (21), discussing the voyage 175
of Captain Edwards in H. M. S. *Pandora*, says: "Running southward, he 162.
made Pylstaarts, at that time inhabited by Tongan castaways, and the fact that he did not stop to examine it, although he saw by the smoke that it was inhabited. . . ."

In the Voyage of the Duff (65, 66), Ata is mentioned as uninhabited, which would seem to be a mistake since it was already occupied in 1791. Speaking of the Spanish discoverer Fran. Ant. Maurelle who passed
in March, 1781, the Voyage of the Duff says: "He also saw the high unin- [131]
habited spot, discovered and named Pylstaarts island by Tasman, in latitude 22° 22′, 175° 59′ west longitude. This he called La Sola."

West (62, p. 271) relates the following story about the peopling of 166
Ata: 173

> . . . strange tales are told of one of their chiefs, called Uhila, whose cannibal pro- 266
> pensities had been intensified by a long residence in Fiji. This chief resided at Nomuka; but he was in the habit of making sudden descents upon different islands, for the purpose of clubbing and kidnapping any of the inhabitants he could lay hold of, with whose

[Ata and Niuatoputapu Islands]

> So the kava root was chewed and squeezed and eaten, and the people drank it, then 184
> all lay down drunk. After the first infusion of the kava the strainings were divided 776
> and each house was given a share so that each house had a drink. On this occasion it was Mu'a, the mother of Julia Ukulolo, who did the chewing and who after the bowl was brought squeezed and strained the kava. Julia Ukulolo was an informant interviewed in 1921.

The population of Ata had its maximum with about two hundred individ- 162
uals, one hundred of which were children according to modern informants. In fact at the time of removal to Eua it was said that there were one hundred school children.

About 1860 a serious disaster overtook the islanders. The following 648
account of what happened was obtained from Tupouata who was at the time twelve or thirteen years old. Another informant, Julia Ukulolo, was eight or nine years old and was in school at the time that the disaster befell. The disaster was in the form of kidnapping by a Peruvian ship. Julia's older brother was taken away by this raider. Tupouata also laid the trouble to the treachery of a Tongan named Paul Vehi, who had been educated in Sydney during a sojourn of two years and who claimed to have been appointed mayor of Ata by King George I. The Ata people were already Christians when the raid occurred.

> When the Peruvian raider appeared she was black with white doors painted upon her sides to make her look like a man-of-war. Vehi went aboard and presumably arranged the kidnapping. When he returned ashore, he made a proclamation that each family was to send a good-looking man aboard with provisions to sell. There was to be no selling on shore, and furthermore the selling on the ships was to take place below decks. Once the Ata people were aboard they were sent to various rooms to select the goods they wanted in exchange. After entering the rooms the doors were locked. Just how many were kidnapped I could not learn. Eight men who were waiting in boats beside the ship escaped, for one of them perceived what had happened. They were however pursued by the ship's boat.

When King George I heard about the raid he sent the three schooners 166
Sialeataongo, Elenoa, and Tupou to bring the people away from Ata, lest more of them be kidnapped. The schooners sailed to Eua, but were unable to land the people on account of the heavy sea. They were therefore taken to Nukualofa and lodged temporarily at Pangai, the site of the present wireless station. Large quantities of food were furnished the refugees by the king. Later they were transported to Eua where they and their descendants now live.

NIUATOPUTAPU ISLAND

Niuatoputapu (Niua Doubly Prohibited) is one of the two northern 131
outlying groups of the modern Tongan kingdom, the other being Niuafoou
or New Niua. Niuatoputapu perhaps derives its name from the privilege 103

1: Gifford E-4,5 (1920-1921) 1929 OU9 Tonga OU

[Niuatoputapu Island]

accorded its inhabitants by the Tui Tonga Kauulufonua I, that they should 103
push away the boats of the Tongans, and not let them land. In Nukualofa, 123
at the time of my sojourn there, resided Maatu, the hereditary ruler of
Niuatoputapu and virtually king thereof. An opportunity was therefore
afforded of obtaining some information concerning that group.

Niuatoputapu was discovered on May 10, 1616, by the Dutch explorers 177
Schouten and Lemaire. It thus constitutes the earliest discovered portion 175
of the Tongan Archipelago. Basil Thomson (54, pp. 398, 399) gives an
account of the visit of Schouten and Lemaire. Wallis visited Niuatoputapu
on August 13, 1767. Nails, which he left there, were later found in the
possession of the Tui Tonga Pau by Captain Cook a few years later.

Niuatoputapu group comprises two islands, Niuatoputapu or Keppel 133
which rises to an altitude of 350 feet, and the volcanic cone of Tafahi or
Boscawen which is two thousand feet high. These islands are located in 131
latitude 16° south.

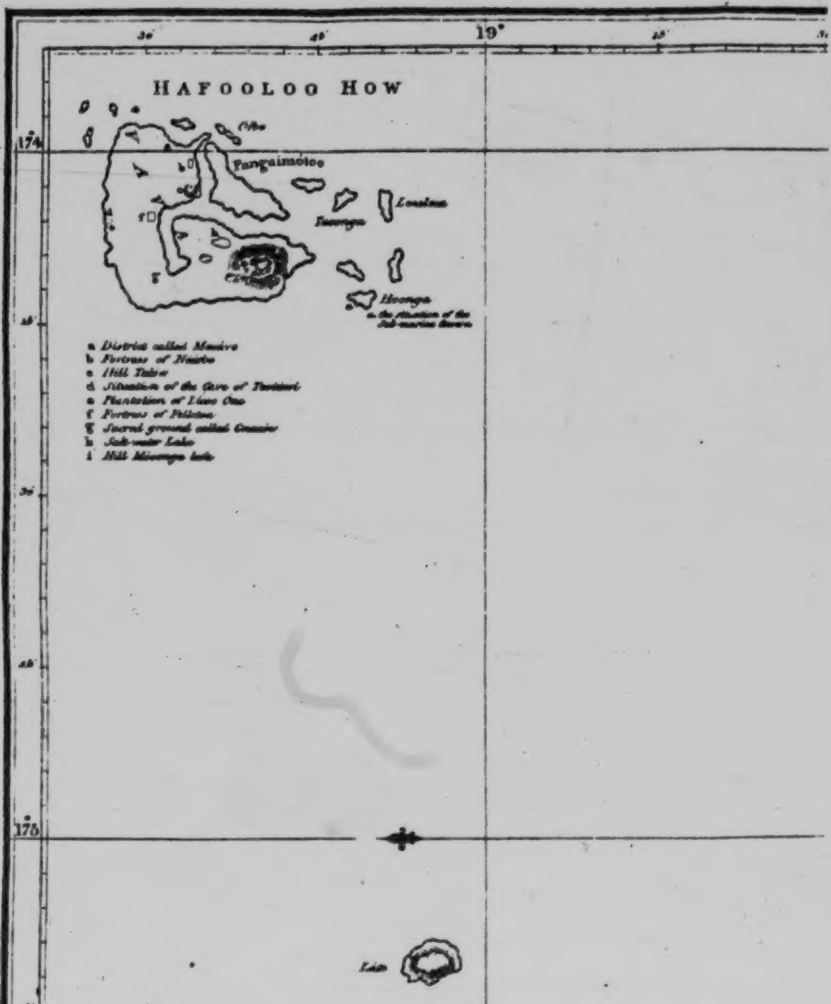
The Maatu whom I interviewed claimed to be the tenth ruler of the 634
line, the first ruler bearing the title of Latu, the title which Schouten and 622
Lemaire give for the ruler of Niuatoputapu. The following is the king 173
list as given by the Maatu of 1921. [123]

1. Latumailangi (chief from heaven) or Puakatefisi (pig from Fisi, a place on 634
Tafahi Island). Pigs seem to be especially associated with Tafahi Island from which 622
Puakatefisi came, for the people of the neighboring Niuatoputapu say of Tafahi, when 173
the clouds are around its summit, that the gods must be cooking pigs, for there is 551
the smoke.

2. Puakailakelo, son of 1. His name means "pig with yellow spots." It was he [825]
who is said to have changed the title from Latu to Maatu. The traditional reason [774]
for the change is as follows: Lavelua, the ruler of Uvea, came on a visit to Niuatoputapu, bringing with him his shell fishhook. In the dialect of Niuatoputapu such a fish hook is called *pa*. In the Uvean dialect it was called *utumaatu*. Latu fancied the name of the fish hook so the two kings traded fish-hook names. In Uvea such a fish hook was henceforth to be called *pa* and in Niuatoputapu it was to be called *utumaatu*. The ruler of the latter island then adopted the title of Maatu for himself and successors, discarding the older term Latu. In Uvea the old term *utumaatu* for fish hook became tapu. The Tamaha's genealogies have the following to say about Puakailakelo and his brother Pungakaitafola:

> There were two brothers, Pungakaitafola and Puakailakelo. Pungakaitafola was Maatu, but on account of his sickness (nose trouble) he allowed his younger brother Puakailakelo to take the title, and he became Maatu.
>
> A boat arrived from Niuafoou with two women, who were passengers, by name of Hekuau and Siulolovao; the latter was the child of Valamotu (daughter of Fusitua and Fotofili Alofi). Puakailakelo courted Hekuau, but she refused him as she had already a sweetheart at Niuafoou (Mailelatamai), and Siulolovao then accepted the courtship of Puakailakelo. Before Siulolovao had any children she adopted a little girl named Fataimoamanu as her first child to Puakailakelo. Fataimoamanu was the daughter of Alokuoulu the brother of Siulolovao.

2: Mariner F-5 (1806-1810) 1818 OU9 Tonga OU9


30'
40'
19°
50'
HAFOOLOO HOW
Ofoo
174
Pangaimotoo
Looalaa
Tanoongo
Hoonga
a the Situation of the Sub-marine Cavern
a District called Mooive
b Fortress of Neafoo
c Hill Talow
d Situation of the Cave of Tooitoni
e Plantation of Liawo Ooo
f Fortress of Pilitoa
g Sacred ground called Oonaive
h Salt-water Lake
i Hill Mooonga lalo
175
Eooa
30'
40'
19°
50'

102
131
133
712
778
241
285
721

[FACING p. 1-A]

2: Mariner F-5 (1806-1810) 1818 OU9 Tonga OU9

102
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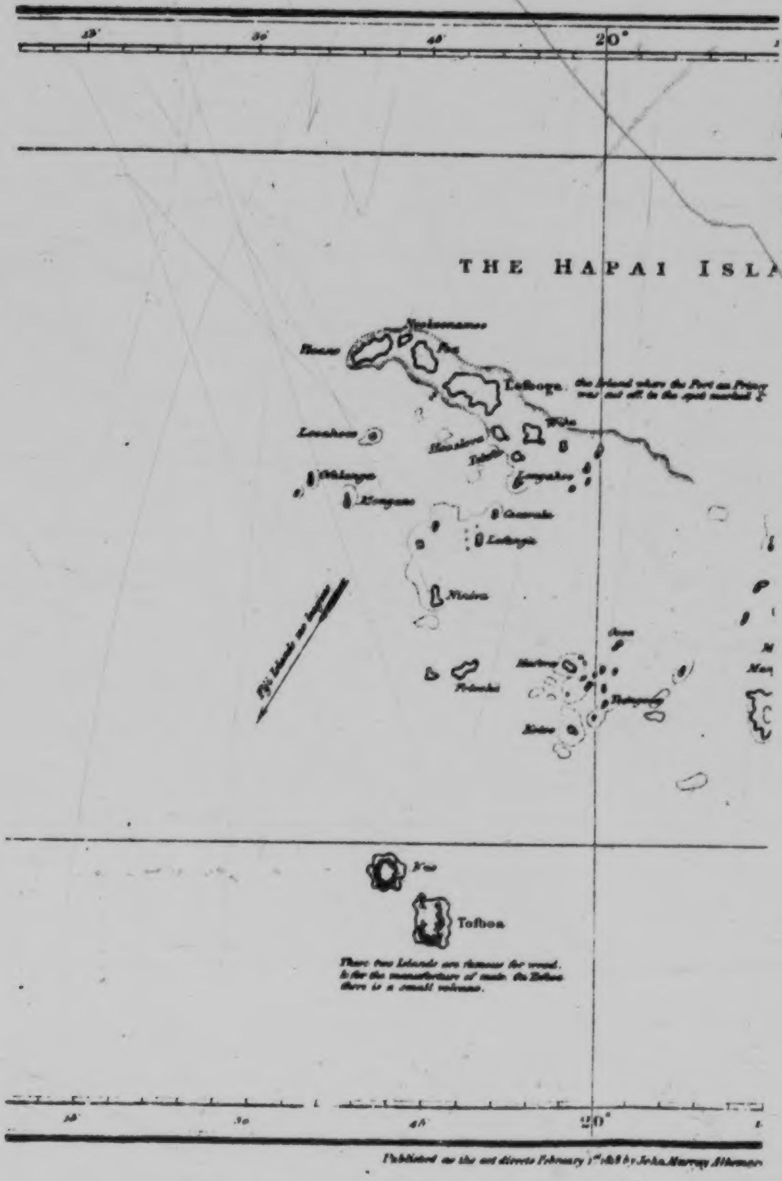
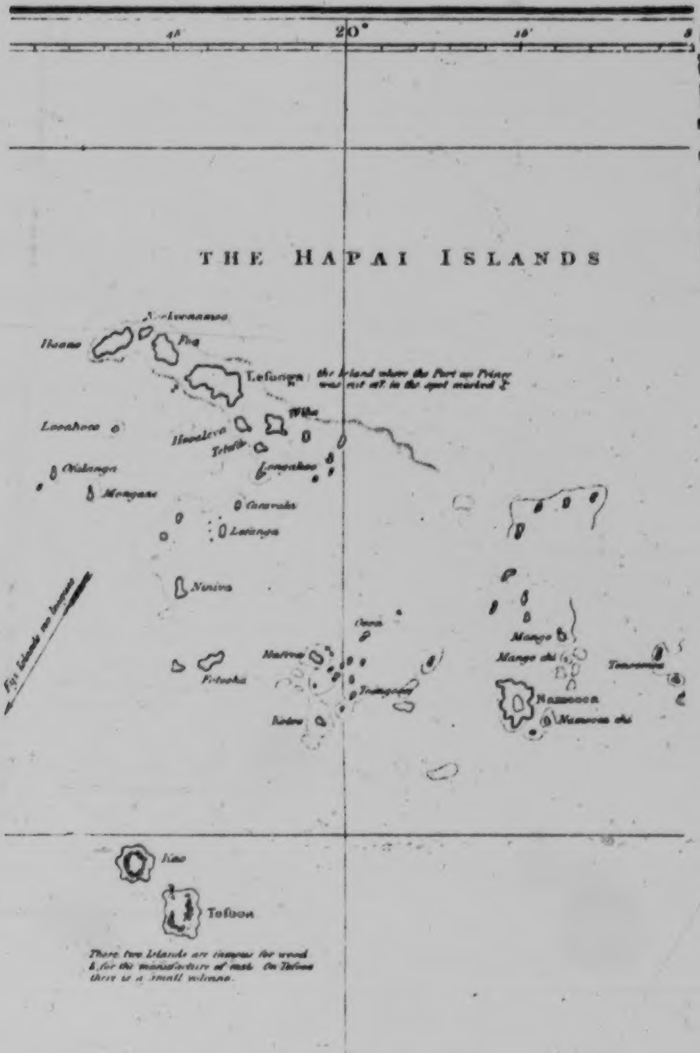

30
40
20°
THE HAPAI ISLA
Lefooga
Tofooa
30
40
20°
Published as the Act directs February 1st 1818 by John Murray Albemar

[FACING P.1-B]

2: Mariner F-5 (1806-1810) 1818 OU9 Tonga OU9

102
133
131
712
778
241
285
721

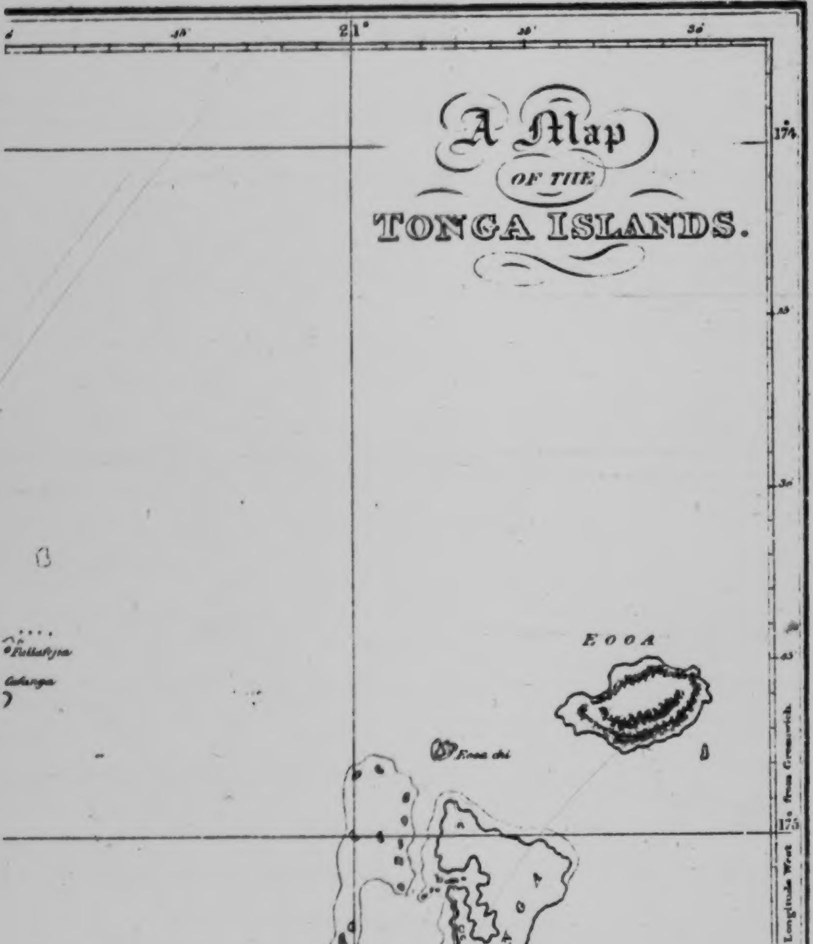


40'
20°
10'
THE HAPAI ISLANDS
Fooa
Lefooga
the Island where the Port au Prince was cut off, in the spot marked
Wiha
Mango
Namooca
Kao
Tofooa
These two Islands are famous for wood & for the manufacture of mats. On Tofooa there is a small volcano.
20°

Published as the act directs February 1st 1818 by John Murray Albemarle Street London

[FACING P. 1-C]

2: Mariner F-5 (1806-1810) 1818 OU9 Tonga OU9


A Map
OF THE
TONGA ISLANDS.
21°
174.
175
EOOA
Eooa chi
Fallafajea
Onevy
Hoonga Hapai
Hoonga Tonga
a District of Hahagi
b Island of Pangaimotoo
c Consecrated ground Mafanga
d Fortress of Nioocalofa
e District of Hihifo
T O N G A
Longitude West from Greenwich
J Walker Sculp

102
131
133
712
778
241
285
721

[FACING P.1-D]

634 669 727 The king, having finished this affair, began to think of returning to Pangaimotoo: Mr. Mariner, indeed, endeavoured to persuade him to follow up the advantages of his victory by immediately laying siege to another fortress, which, no doubt, would soon have fallen into their hands; and the whole island, being struck with dismay, would readily have submitted to his government. But, it seems, Finow was not yet the complete warrior; or he thought, perhaps, that, having such powerful weapons in his possession, he could reduce the island at any future time.

Pangaimotoo is not more than three quarters
727 of a mile distant from the island of Tonga, se-
[131] parated from it only by a long narrow reef.
[484] To this place Finow returned with all his men, intending to go back to Tonga another day.
[262] As soon as they landed, they sat down to eat, not having taken any refreshment since morning, with the exception of some of the men, whose stomachs not being the most delicate, had partaken of some yams and plantains that they found roasting along with the bodies of the dead in the general conflagration at Nioocalofa.

727 349 712 They remained several days at this island, during which time several canoes were sent to an uninhabited part of Tonga for the

127 by the Catholic Missionaries of the Marist Brotherhood[1] and the other by the Rev. Shirley W. Baker.[2]

104 With one exception the Tongan orthography followed in this paper is that set forth on pages 1 and 2 of the Dictionnaire Toga-Francais. Sixteen symbols in all are used, of which five represent vowels and eleven consonants. The vowels are *a, e, i, o,* and *u* and the consonants are *f, h, k, l, m, n, ng, p, s, t,* and *v. Ng* [3a] is used in this paper in place of the *g* employed in both the Dictionnaire Toga-Francais and in Baker's Dictionary.

114 Baker's Dictionary differs from the Dictionnaire Toga-Francais in using both *b* and *p* instead of *p* alone; and *s* and *j* instead of *s* alone.

127 128 Owing to the fact that practically all of the place names presented in this paper are drawn from government records, charts, and various Tongan manuscripts and are recorded in varying orthographies and largely without diacritical marks, it is impossible to consistently indicate by diacritical marks the exact pronunciation of each word. For particulars concerning Tongan phonetics the reader should consult the dictionaries.

THE TONGA OR FRIENDLY ISLANDS

131 The group named the Friendly Islands by the famous navigator Cook lies between the parallels of 15° and 23° south latitude and between the 173rd and 176th meridians west of Greenwich.

103 The name Tonga as applied to the whole group is derived from the name of the largest island of the group, generally known as Tongatabu.[3]

133 [131] With the exception of the outlying volcanic island of Niuafoou approximately in latitude 16° S and longitude 176° W, the islands of the Tongan archipelago lie in two parallel chains stretching from north to south. The eastern chain is of coral formation. The western chain is volcanic.

The eastern chain includes more than one hundred islands, most of them low-lying—in fact, little more than uplifted coral reefs. They are exceedingly fertile and bear the great bulk of the Tongan population.

The western volcanic islands are not numerous. They are from south to north: Ata (1165 feet elevation), the twin islands of Hunga Tonga and Hunga Haapai (respectively 490 and 400 feet elevation), Tofua (1670

---

[113] [1] Missionnaires Maristes, Dictionnaire Toga-Francais et Francais-Toga-Anglais. Precedé d'une Grammaire et de Quelques Notes sur L'Archipel par les Missionnaires Maristes, revu et mis en ordre par le P. A. C. s.m. Publication de l'oeuvre de Saint-Jerome, Librairie-Editeur, Paris. Chadenat, 1890.

[113] [2] An English and Tongan Vocabulary, also a Tongan and English Vocabulary, with a list of Idiomatic Phrases; and Tongan Grammar, Auckland, N. Z., 1897.

[3] The spelling Tongatabu has been unfortunately adopted by official geographic boards and gazetteers. The correct orthography is Tongatapu.

[3a] In the arrangement of the gazetteer, *ng* follows *n*.

cabulary this phrase seems out of place in Tonga, a country almost entirely without running water. 539 823 312

328. Tafe jino i vai: Perhaps flowing as a body of water.

Pratt (Grammar and Dictionary of the Samoan language), translates *tafetinoivai:* "to flow in the river bed." It is used in Tongan of that which is manifestly good and may indicate a distinct, clear-flowing, volume of water in contradistinction to scattered streamlets. Except for a few tiny rivulets in Eua the Tongan group is without surface flowing water, and so such an expression would seem to have originated in Eua, or, perhaps more probably, to have been brought from Samoa. [177]

329. Ta jino-i-vai: Cutting out body of water.

Water making for itself a channel, and becoming a manifest body of water. Like the preceding, this expression is applied to that which is clean, unsullied, as well as to that which is manifest.

330. Tuutuu mounga: Standing (on) mountain. 539

Applied to one who is out of reach by reason of rank or the protection 823
of those of high rank. 554

GEOGRAPHIC LOCATIONS

TONGATABU AND EUA

[Tongatabu the chief island of the group, and the seat of Government. It is one of the most southerly of the Tongan Islands. On its southeast side is the high and beautiful island of Eua, separated from Tongatabu by a narrow but very deep strait.] 131 133

331. Hange ko Manaki: Like Manaki. 539

Manaki is a high towering rock in the island of Eua, and is a very prominent feature in the landscape. Used of that which is obvious. (Compare No. 252.) 823

332. Hange koe Matafota: Like Matafota.

Matafota is a place in the sea between Eua and Tongatabu, which has passed into a proverb for its roughness. (See No. 342.)

333. Koena pe he Tuatoi: Tuatoi is just over there.

Tuatoi is a place in Eua at a considerable distance from Ohonua, the chief centre of population. Used in an ironic or deceptive way to one who asks how far a place is away. The one inquired of may just point in an offhand way and say, "Oh, Tuatoi is just over there," but when the one who asked comes to walk the distance he will find that he has a long way to go.

at a considerable distance from their own homes. It is moreover a high 539
chiefly village; and therefore a likely place to obtain food. There is a 484
double reference in this phrase; first, that one is so hungry that he is 829
willing to go a long way to obtain food; second, that in going to Fuaamotu 26
he is going to a good place to get it.

HAAPAI

[Haapai is the central portion of the Tongan group, lying almost mid- 131
way between Tongatabu to the south and Vavau to the north. It is a 133
widely scattered archipelago, consisting almost entirely of low coral islands.]

339. Afa kai fai ki Haa-Ngana: A great talk about food after 539
the Haa-Ngana way. 829

Haa-Ngana, the tribe of Ngana, is found in three small islands in 184
the Haapai group. What might be reckoned a great thing in these small islands is not necessarily of such dimensions as to appear worthy of special comment to the inhabitant of a larger place. Much ado about nothing.

340. E seea ae namu Nomuka: Nomuka mosquitoes will be 539
driven away. 825

The island of Nomuka, one of the southernmost of the Haapai group, is deservedly famous for its mosquitoes. The expression is used for that which is very difficult. It is easier to keep the mosquitoes off oneself in Nomuka than to do so-and-so. (Compare Nos. 370, 358 and 133.)

341. Foa ulu efu: Foa dusty head.

This is an abusive epithet applied to the people of Foa in Haapai. It 539
makes a Foa man angry and does not seem applicable to any peculiarity 578
discoverable today in the people or their island, which is large and very 184
fertile. A story is told which refers the origin of the expression to a combat between two chiefs of Foa. One hit the other on the head with his club and made a cloud of dust fly out. It is also said the yams in Foa have large heads with plenty of room for the dirt to lodge when they are dug up; but this strikes one as being rather the finding of fresh cases to which to apply the abuse than the explanation of its origin.

342. Hange ko Fakatoutoa: Like Fakatoutoa. 539

Fakatoutoa is a place in the sea near Nomuka, in the Haapai Group, 823
where rough water is frequently encountered. Used proverbially of rough seas. (See No. 332.)

343. Hilinga mo Tolu koe motu tokanoa: It becomes Tolu, an island that lies right out of the way.

Tolu is a small group of islets lying at a considerable distance from any other portion of the Tonga Islands and is, moreover, rather inaccessible and out of the usual track of boats. The expression as it stands, is ellip- 183

canoes used to go there for fishing. The expression is used generally of a 539
long voyage to reach a reef. 823

349. **Manako maka fai ki Tofua:** Wishing for rock in Tofua. 539

Volcanic stones and pebbles from Tofua are highly valued for several 823
purposes, but Tofua is far from most of the inhabited islands, the anchor- 183
age is bad, and contrary winds are frequently met with, especially in returning. Wishing for stones from Tofua, therefore, is to desire something that is worth having but difficult to obtain.

350. **Taka Haapai tae i Tofua:** Going about Haapai without 539
being in Tofua. 823

The meaning of this is similar to that of No. 335, the volcanic moun- 484
tain of Tofua being as inconveniently situated with respect to the main portion of the Haapai group as Eua is with respect to Tongatabu. (See also No. 352.)

VAVAU AND NIUA FOOU

[Vavau is the most northerly of the Tonga Islands with the exception 131
of the outlying islands of Niua Tobutabu and Niua Foou. Vavau is high 133
and picturesque and possesses an exceedingly fine harbor. Niua Foou is about midway between Vavau and Samoa.]

351. **Kai pe e Ngaunoho ae fua o enau gaue kovi:** Ngaunoho is 539
merely eating the fruit of its ill deed. 823

As a proverb this is one of the many expressions found scattered 622
throughout the world which warn erring mortals that they must reap as 626
they sow. Ngaunoho is a village in Vavau, and is said to have been once 829
a flourishing place but to have fallen from its old prosperity through having offended its chief. Its present decrepitude is the fruit that it has to bite on.

352. **Taka Haafuluhao tae i Poujini:** Going about in Haafuluhao 539
without being in Poujini. 823

Haafuluhao is a common name for Vavau, the northern part of the Tonga Islands. Poujini is a small islet near Haalaufuli in Vavau which is not often visited. This is similar to Nos. 335 and 350.

353. **Tala kei i Kapa:** Tell still in Kapa.

Kapa is an island in Vavau, lying close to the island of Mala. The 539
route from Kapa to the mainland lies through Mala, where once dwelt a 776
formidable cannibal man or demi-god. Warnings should be given or prepa- 266
rations made in Kapa before passing on to Mala, where one was in deadly 183
peril. Used generally of taking time by the forelock, making all preparations to meet danger before one is actually involved in it.

[p.xvi]

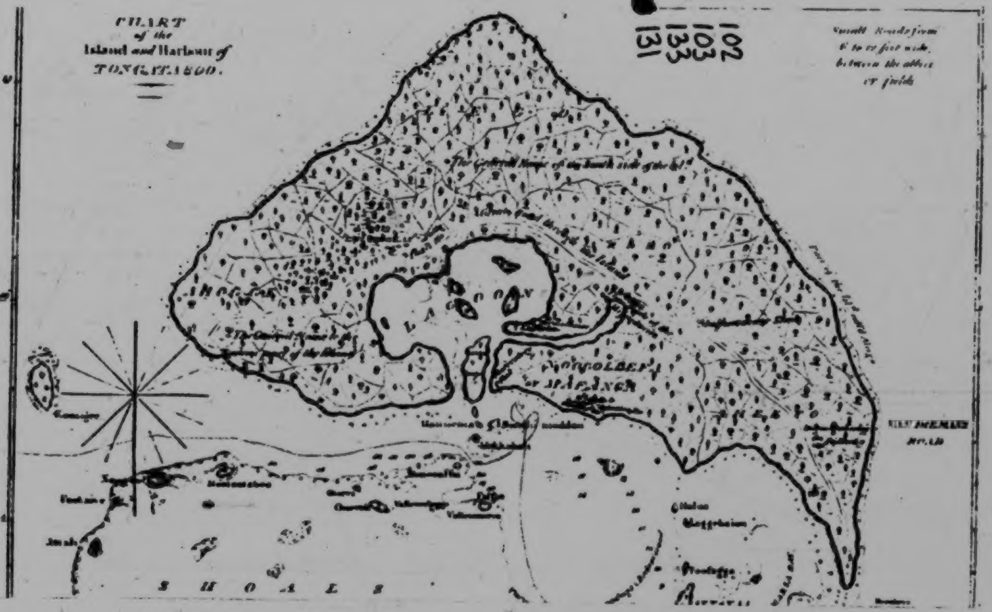


CHART
of the
Island and Harbour of
TONGATABOO.
Small Roads from 6 to 12 feet wide, between the allotted fields
The General Shape of the South side of the Isl.
LAGOON
VAN DIEMAN'S ROAD
SHOALS

102
103
133
131

12: Vason M-3 (1797-1801) 1810
OU9 Tonga OU9

12: Vason M-3 (1797-1801) 1810
OU9 Tonga OU9

CHAPTER VI.

000

VOYAGE FROM OTAHEITE TO TONGATABOO.

Leave Otaheite.—Reach Palmerstone Island.—Difficulties in landing.—Description of it.—Pass Savage Island, and Middleburg, or Eooa.—Enter the Bay of Tongataboo.—Visited by two Europeans.—Their Character.—Reflection.

[131] ON Sunday afternoon, we set sail for Tongataboo, distant from Otaheite, about one thousand, fourh undred miles. And now, the trade-winds, to avoid which, we had been obliged to sail beyond the longitude of Tongataboo; and to go first to Otaheite, as before mentioned, pleasantly wafted us forward, while we amused ourselves, in admiring the beauteous shores of Otaheite, Ulitea, and other isles, which form the group of the Society Islands; but want of time prevented our visiting them.

The morning of the sixth day discovered to us an Island, which, the Captain, from the longitude, knew to be Palmerstone Island, the name by which Captain Cook distinguished it for its productions, when he discovered it. Determining to avail ourselves of the opportunity of supplying the vessel

THE VILLAGE OF PANGAI

LOCATION AND CLIMATE

OF the three island groups into which the modern 101
Kingdom of Tonga is divided, that of Vava'u is northern- 131
most. The position of its chief village, Neiafu, is 18° 39′
south, and 173° 59′ west. Three-fifths of the land area of 131
this northern group is in the one island, 'Uta Vava'u. The
remaining islands are separated from the mainland by narrow [133]
channels, some of them fordable at low tide. The island (see
Fig. 1),[A] on which Pangai village[2] is situated, Pangaimotu,[3] lies
directly across Neiafu harbour. The nearest landing-place 361
to the village may be reached by launch in a half hour. By 484
land, it is about a two-hour walk from Neiafu to Pangai
along an ill-kept bush track that is officially graced with [491]
the title of "road"; the distance is covered in half this [492]
time by horse. The ford between 'Uta Vava'u and the [133]
island of Pangai may be crossed by horse or on foot at low
tide, by horse only—and then with considerable difficulty—
at high tide.

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[2] Pangai is a fairly common place name in Tonga. It means "meeting place" or "gathering place" and was formerly applied to the permanent or temporary residences of the Tui Kanokupolu or his agents. As noted below, the island of Pangaimotu is a royal estate. The Queen of Tonga is the present holder of the office of Tui Kanokupolu. We have no data however, as to the specific time or occasion in the past when the island and the village received their name, Pangai. 103 643

[3] Perhaps a note should be added at this point on orthography. The orthography to which the early Wesleyan and Roman Catholic missionaries reduced the Tongan language and which is in current usage at the present time, is most peculiar. It consists of five vowels and thirteen consonants. The vowels are the standard Polynesian vowel sounds. In the consonantal system however, both *b* and *p* are used for the intermediate Polynesian sound between *p* and *b*; *t* and *j* are also used as if for separate sounds, though referring to a dental *t* sound that is sometimes palatalized before certain vowels. The front palatal nasal *eng* sound is symbolized by *g*. The student has his choice between using an irrational but customary and specifically Tongan orthography on the one hand and, on the other hand, the more widely used standard Polynesian orthography. For the place-names and proper names on the two sketch-maps we have kept the 104

[A] [See category 116, p. 6--Analyst]

133 The island of Pangai has a greatest height of 290 feet
[131] and a total area of 2,188 acres. All the island makes up one
[423] of the royal estates. There are two villages, Pangai and
(643) Utulei. In 1931 their populations were given as 250 and 104
361 respectively.[4] The division of acreage between the two
[162] villages is roughly indicated on the island map (Fig. 1).A

[423] Because the principal economic activity of the villagers
128 is gardening and cultivation of root crops mainly, a note
[241] may be added on soil and climate. The following information[5] refers specifically to 'Uta Vava'u but there is no reason to think that it does not apply equally well to the island of
134 Pangai. The islands are of a coral-formation on a volcanic base. The soil is rich and fertile. The climate is sub-
132 tropical with a humidity in mid-summer that is severe and which has a year-round mean in Neiafu of 77 per cent. The rainfall is fairly heavy with a wet season from December to April and an occasional short but injurious drought between October and December. (Rainfall range in Neiafu, 68 to 103 inches, mean of 82 inches.) The soil of the island is
312 very porous and water may be obtained easily by sinking a well. Today however, the villagers rely on concrete cisterns to obtain water for drinking and domestic purposes. The number and location of these cisterns in Pangai village is shown on the map (Fig. 2).B The prevailing winds are
132 the south-east trade-winds. During the rainy season, hurricanes are an ever-constant threat to the villagers. Only
731 occasionally do these hurricanes occur with disastrous effect. Every year however, the possibility of hurricane means an ever-recurrent anxiety. A hurricane does great damage to the gardens and cultivations and generally means food-shortage for many months thereafter. Even strong winds of less than hurricane force may cause great damage if they

[TEXT CONTINUED ON PAGE 10]

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(104) Tongan orthography. No confusion need arise: it should be obvious that the village of Pagai on the map is the same village referred to as Pangai in the text. It is hard to answer the very natural question as to why we use these two orthographies thus, instead of one only. Presumably we think the Polynesian system more correct than the Tongan system although we would feel guilty if we tampered with the standardized spelling of place-names on a map.

[4] According to our household census, the population of Pangai in December, 1938, was 268 (see p. 69).

[113] [5] From Wood, A. H., *History and Geography of Tonga*, Auckland, 1938, pp. 85-86.

A. [See category 116, p. 6--Analyst]
B. [See category 116, p. 9--Analyst]

14: Thomson G-3 (1886-1891) 1894
OU9 Tonga OU9

PREFACE.

For the benefit of those to whom the name Tonga has an unmeaning sound, and latitude and longitude convey no distinct impression, let me say that the realm of King George Tubou will be found in the map under the name of the "Friendly Islands," about 1000 miles north of New Zealand, 300 miles east of Fiji, and 350 south of Samoa. 131

I count among the Tongans so many true friends that it would touch me nearly if I should seem in the following pages to have been lacking in recognition of their many admirable qualities. If I have spoken of their institutions with levity, it is because I have judged the nation from the standard of a European people, with whom, in intelligence, physique, and disposition, they are fit to be compared. I have printed these pages with the knowledge and permission of the chiefs best fitted to speak for the whole people; and when I refuse to treat seriously the fatal experiment of engrafting Western customs upon their own ancient and admirable polity, 114

breast, and they fled to one of the canoes with sails and tried 175
to persuade them to attack, but they would not, having been 177
well used by us. They were very thievish and exceedingly de- [181]
sirous of iron, trying to draw the bolts out of the ship. They [141]
were of fine stature, well-proportioned, naked but for an apron. [291]
Their hair was dressed and frizzed, and some had long hair tied [302]
up in a knot. They were notable swimmers. Cocos Island [481]
lies in lat. 16° 10′. [131]

On the 12th, in the morning, trading was reopened. We
bought 1200 nuts that day; also bananas, *obas* [yams], and some
water. The ship had eighty-five people all told on board, and
every one had a dozen nuts. The king of the other island sent [136]
a canoe with a black wild pig as a present to us. In the after- 175
noon the chief himself came with a great sailing-canoe, fashioned 177
as has been described heretofore, like an ice-sled, and was ac- 622
companied by quite thirty-five small canoes. This chief was
called by his people *Latou*.[1] We received him with drums [534]
and trumpets, no little to his astonishment, as he had not seen
or heard these instruments before. Many of the people who [609]
accompanied this chief kissed our feet, bowing and clapping
their fists together over their heads, and other strange ceremonies, and showed great wonderment at our ship. The chief
seemed to have good authority over his people. The chief
himself could not be induced to come on board our ship, but
his son did.

13*th*.—In the morning fully forty-five small canoes and an
armada of twenty-three sailing ones came off towards us to
trade. The latter had about twenty-five men in each, and the [501]
former four and five apiece. They wanted us to sail over to
the other island, and we weighed anchor and proceeded—the
chief sailing in his canoe abreast of us.

Presently the chief made a signal, and boarded us with great 175 177
force, breaking the prow of his canoe, and thereat the rest began 622

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[1] *Latu* is still the title of the chief of Niua-tobutabu. Cf. Fijian title 609
Ratu.

175 knives, beads, and nails. We sent four of our men to be hostages
177 on shore, and kept some of the people in the ship. These
[181] people were very active, swam and dived with great skill, like
[343] those we met with at the other islands. There were round huts
along the beach, thatched, about 25 feet in circumference, and
12 feet in height, with a doorway. . . .

[276] [The Journal contains the earliest published description of
the drinking of kava, which coincides with the present ceremony.
Peace was established, visits of ceremony paid, and
[131] cordial relations maintained. These islands lie in 14° 56′, and
were named Hoorense Eylanden = Hoorn Island or Futuna.]

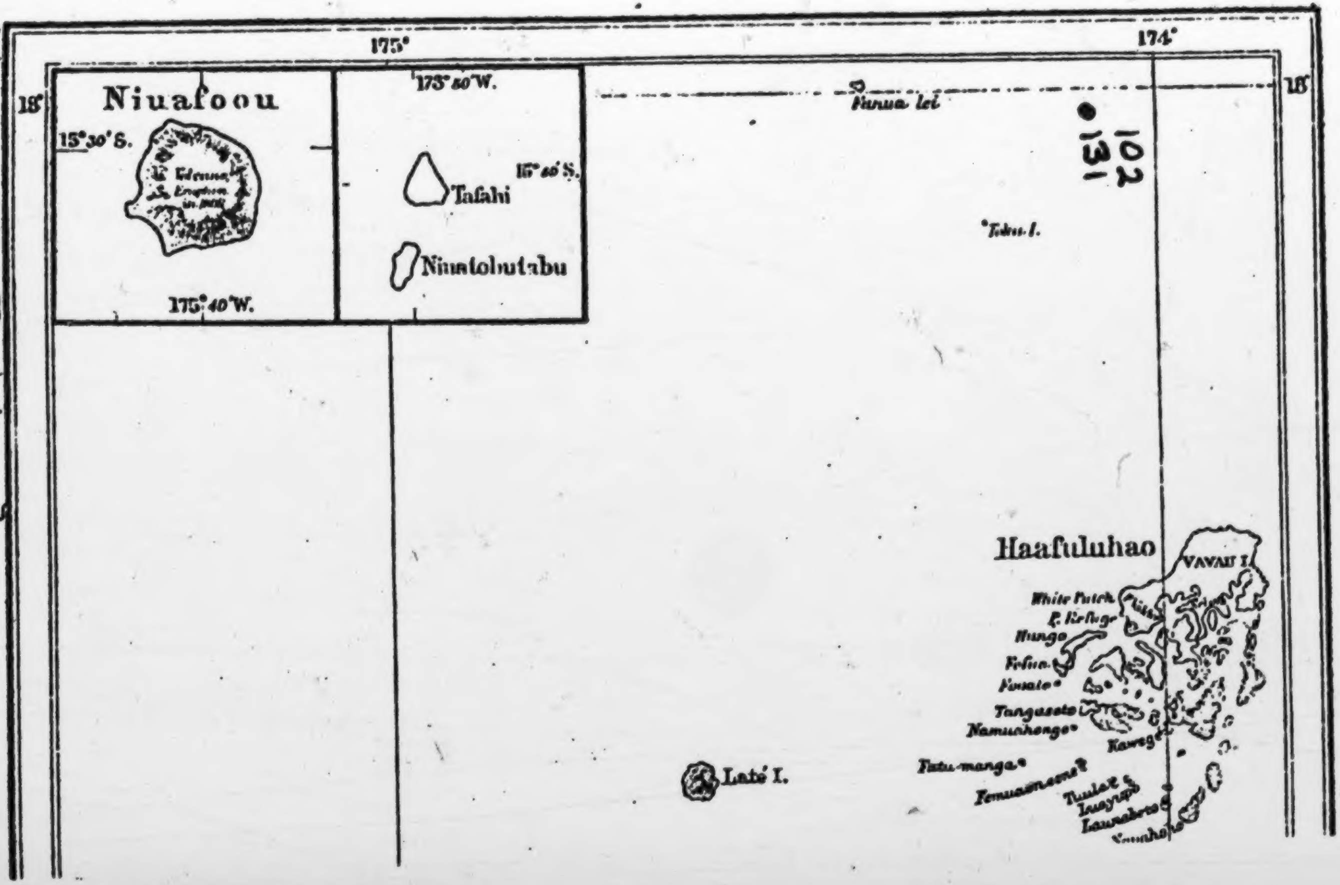
SUMMARY AS TO THE PLATES REPRODUCED IN THE TEXT.

[501] Plate on p. 312 shows the meeting with a native canoe at sea,
off the islands they called Cocos (Niua-tobutabu), which lay just
out of sight to their S.W.

Plate on p. 310 shows the islands in question, which they
[501] sighted the morning after meeting with the canoe, but failed to
[131] reach until the following day—*i.e.*, Cocos and Verraders Islands:
lat. 16° 10′. Here the ship's company had a collision with the
natives. The chief's name was *Latou.*

175 Plate on p. 311. This is a plate which represents several subjects
177 described in the text all in one picture. The two chiefs
291 are shown twice over, and the large figures on the left are introduced
301 302 to illustrate the descriptions of various forms of headdress.
342 The trumpeters from the ship are blowing and the
344 drummer beating, the four or five standing figures on the outside
622 of the shed, to the left of the two chiefs sitting under it, are
276 making kava, and the chiefs themselves conversing, all at once.
609 The round or conical huts to the right are introduced merely as
516 types of dwellings.
142
137

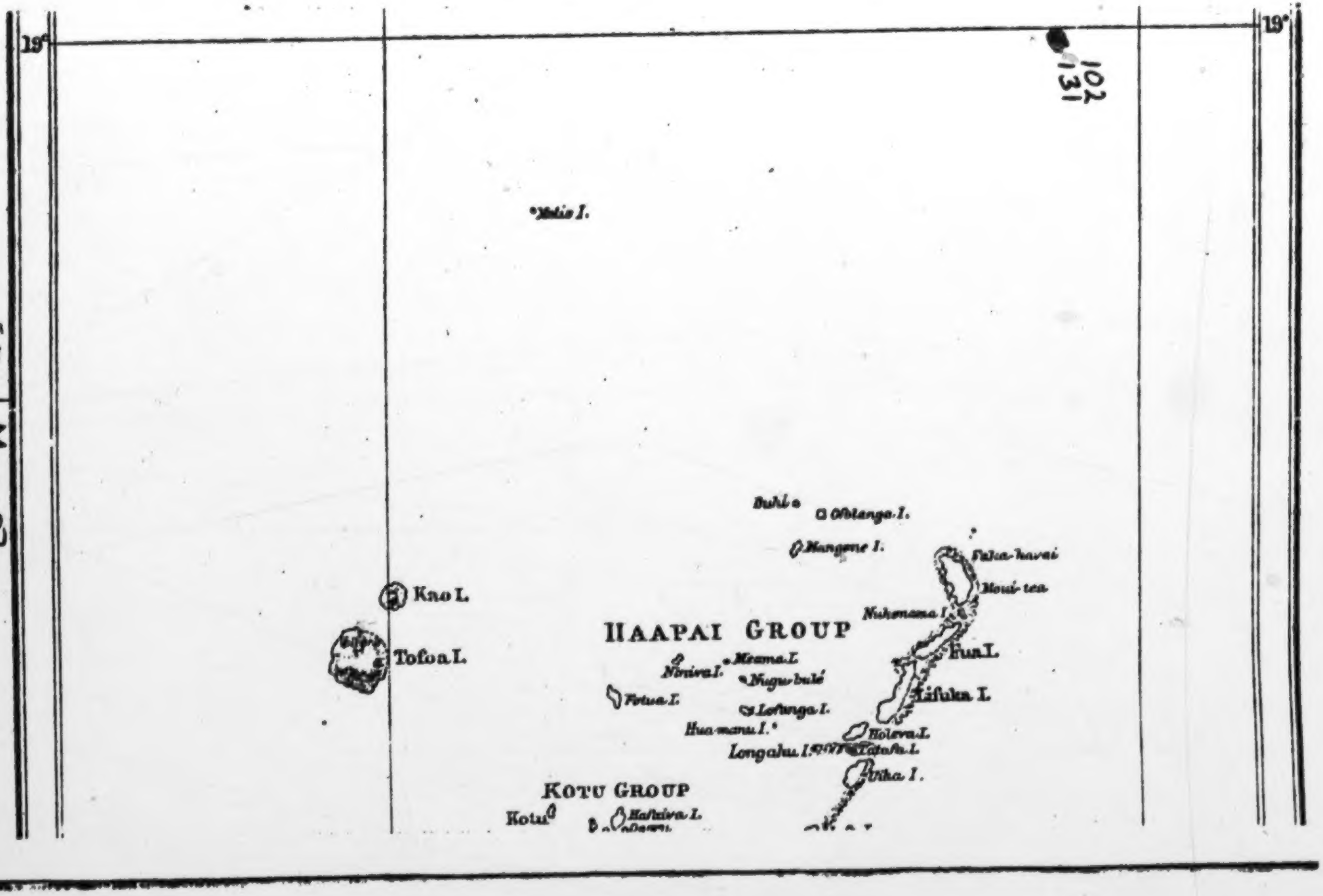
[End Map-A]


Niuafoou
15°30'S.
175°40'W.
175°30'W.
15°50'S.
Tafahi
Niuatobutabu
175°
174°
18°
18°
Fonua lei
Toku I.
Haafuluhao
VAVAU I.
White Patch
P. Refuge
Hunga
Fofua
Fonate
Tangasoto
Namuahonga
Kawega
Fatu-manga
Fonuaimeme
Late I.

102
131

14: Thomson G-3 (1886-1891) 1894
OU9 Tonga OU9

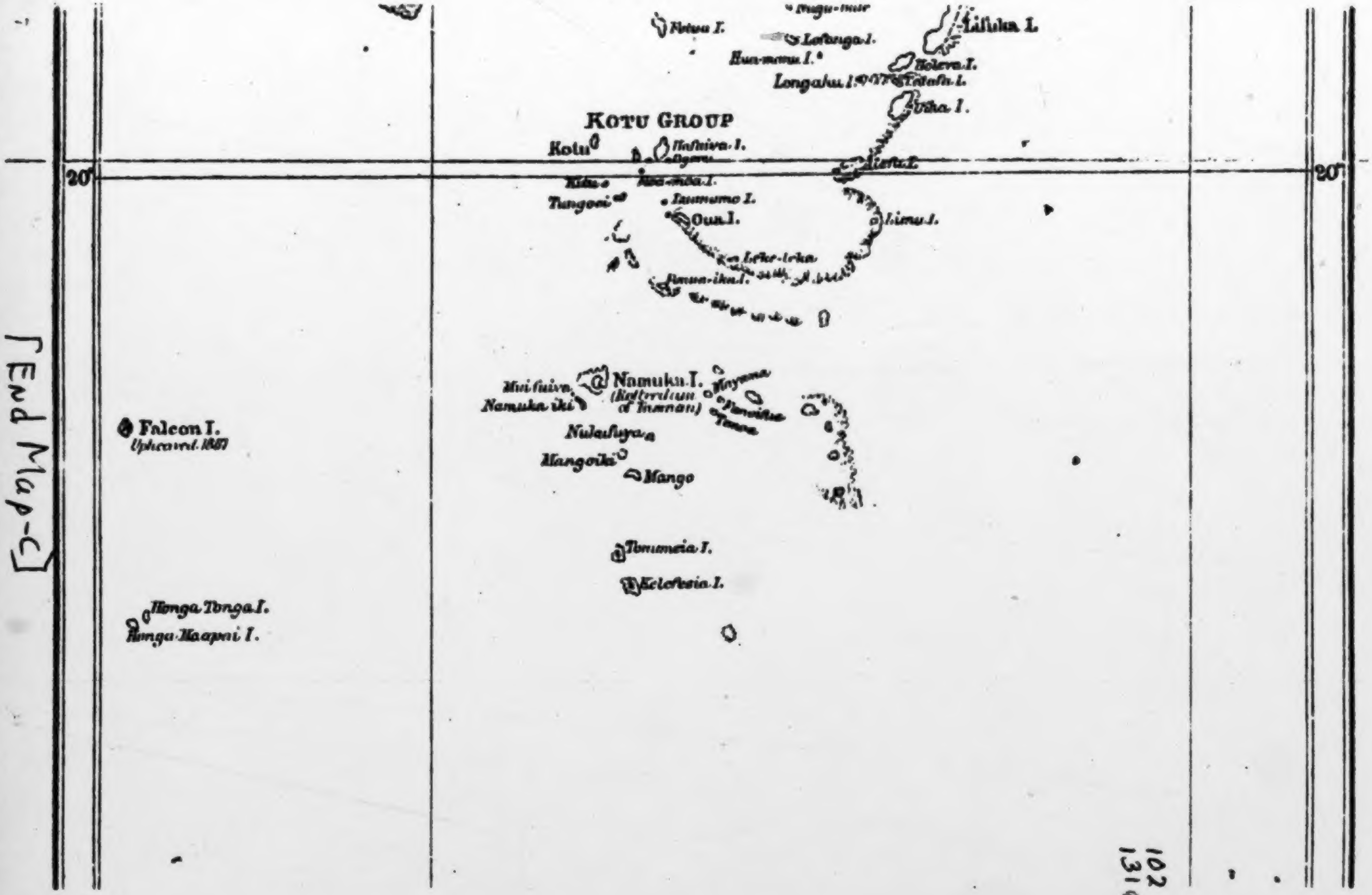
14: Thomson G-3 (1886-1891) 1894
OU9 Tonga OU9


19°
19°
Late I.
Buhi
Ofolanga I.
Mangone I.
Faka-havai
Moui-tea
Nuhemama I.
Kao I.
HAAPAI GROUP
Tofoa I.
Fua I.
Mrama I.
Niniva I.
Nugu-bulé
Lifuka I.
Fotua I.
Lofanga I.
Hua-manu I.
Holeva I.
Longalu I.
Tatafa I.
Uiha I.
KOTU GROUP
Kotu
Hafaiva I.

102
131

[End Map - B]

[End Map-C]

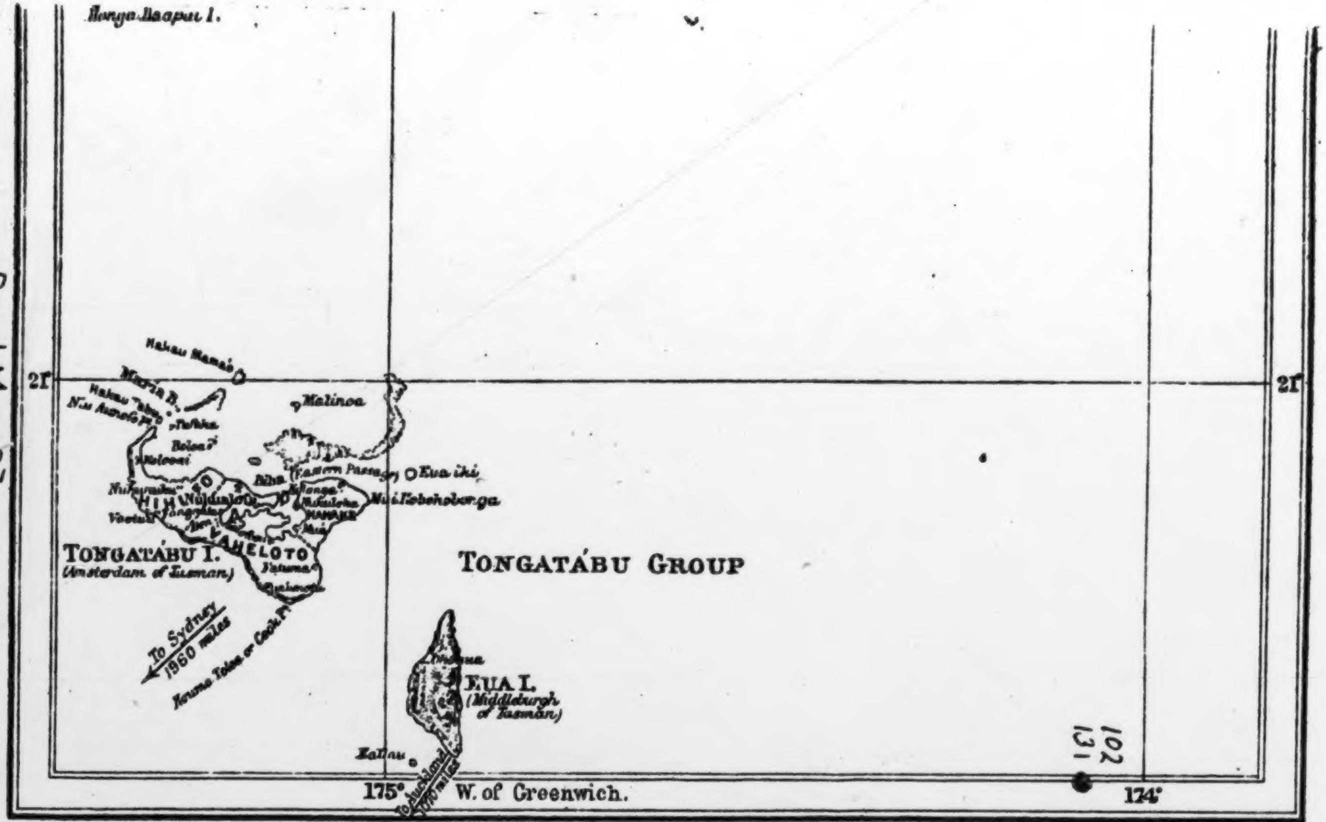

Lifuka I.
Fotua I.
Lofanga I.
Foleva I.
Longahu I.
Uiha I.
KOTU GROUP
Kotu
Hafaiva I.
Tungua
20°
Oua I.
Limu I.
Namuka I.
Mui fuiva
Namuka iki
Nukulufuga
Mangoiki
Mango
Falcon I.
Upheaved 1887
Tonumeia I.
Kelefesia I.
Honga Tonga I.
Honga Haapai I.

14: Thomson G-3 (1886-1891) 1894

OU9 Tonga OU9

102
131

[End Map-D]



Honga Haapai I.
Hakau Mamao
Malinoa
Eua iki
Nukualofa
HIHIFO
VAHELOTO
HAHAKE
TONGATABU I.
(Amsterdam of Tasman)
TONGATABU GROUP
To Sydney 1960 miles
EUA I.
(Middleburgh of Tasman)
Kalau
To Auckland 1070 miles
21°
21°
175°
W. of Greenwich.
174°

102
131

Edinburgh & London; Blackwood & Sons.

Stanford's Geogl. Estabt.

14: Thomson G-3 (1886-1891) 1894

OU9 Tonga OU9

20: Gifford E-5 (1920-1921) 1924 OU9 Tonga OU9

EURO-AMERICAN ACCULTURATION IN TONGA.

BY EDWARD WINSLOW GIFFORD.
University of California.

THE Polynesian Kingdom of Tonga, a British protector- 131
ate, lies about a thousand miles north of New Zea-
land, four hundred south of Samoa, and two hundred east
of Fiji. The population of Tonga in April, 1921, was 24,935, 161
of which 23,759 were Tongans, 235 were other Pacific
Islanders, 706 were other foreigners (chiefly Europeans),
and 235 were half castes. The Tongan population of to-day
is probably nearly as numerous as it was in Captain Cook's
day.

There is no European colonization in progress, for 167
foreigners are prohibited from acquiring land except by 423
lease. The Tongans are Christians. The most important 795
church is the Free Church of Tonga, an offshoot of the
Wesleyan-Methodist Church.* Two-thirds of the population
belong to it. Next in numerical importance are the Wes-
leyan-Methodists and the Roman Catholics, each holding
about a sixth of the population. Then follow the Mormons,
the Seventh Day Adventists, and the Episcopalians. Reli-
gious rivalry is keen.

With unimpaired population, with no Caucasian con- 177
queror in the land, and with its instiutions functioning 171
almost entirely through Tongans (except for friendly
British financial direction), the kingdom of Tonga offers
something of a parallel in Euro-American acculturation to
the empire of Japan.

It is the aim of the writer to present a number of 121
examples, to make clear the manner in which acculturation
is proceeding.

Tonga is now a constitutional monarchy with a legis- 643
lative assembly composed of ministers, nobles, and elected [642]
representatives of the people. The present monarch is Queen

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* A majority of the Free Church and the Wesleyan-Methodists have this year, 1924, re-united.—Ed.

182 free education, free health services and traditional responsibilities for mutual aid makes an effective and long-established system of social security.

NATURAL HERITAGE

● 131 The hundred and fifty odd islands of the Kingdom of Tonga are scattered over a rectangle of the Pacific extending four hundred miles from north to south, their centre of gravity being near 20°S 173°W. Although they are spread over so much ocean their total area is less than 270 square miles, and all but thirty-six of them are either too small or too volcanic to be settled (Fig. 1).

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361

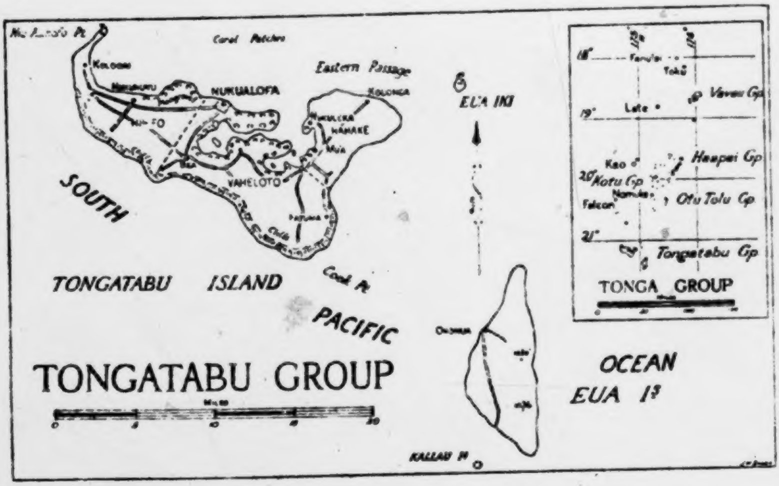
Coral Patches
Eastern Passage
KOLONGA
NUKUALOFA
VAHELOTO
NAKAKE
Mua
SOUTH
TONGATABU ISLAND
Cook Pt
PACIFIC
OCEAN
EUA IKI
EUA Id
KALLAU Pt
TONGATABU GROUP
0
5
10
15
20
18°
19°
20°
21°
Lete
Vavau Gp
Kao
Haapai Gp
Kotu Gp
Nomuka
Falcon
Otu Tolu Gp
Tongatabu Gp
TONGA GROUP

Fig. 1

133 Geologically they consist of two chains: a volcanic chain lying to the west of a line from Ata to Tafahi, and an eastern chain of coralline islands encircled by reefs. Despite their volcanic origin none of these islands reaches higher than Kao (which has a peak of 3,380 feet) and few of them have hills worth the name. Lakes and streams are equally
133 scarce. Tofua and Niua Fo'ou each has a fair-sized lake and there are
312 a number of creeks on Eua, but the other islands have to rely entirely upon wells and the storage of rain for their water. One reason for this
134 is that the soil is extremely porous, being a shallow layer of red volcanic ash, devoid of quartz, but containing broken-down particles of limestone. It is initially very fertile, but does not carry crops for long

134

without spelling, probably owing to deficiencies of potash. There are 135
no minerals in Tonga, and no forest resources of value. 137

The islands in the volcanic chain are of little account. Only Niua 133
Fo'ou, Niuatobutabu, and Tafahi are large or safe enough to be (311)
peopled, and they contain less than a tenth of the population. Two of them, however, have attracted some fame, Niua Fo'ou because of its Tin-Can Mail, and Falcon Island because of its periodic disappearances. This jack-in-a-box island is associated with an active volcano, whose eruptions occasionally leave a raised surface of ash and scoria which sea and rain later wash away.

The eastern chain is divided into three groups, Tonga Tapu in the 131
south, Ha'apai in the centre, and Vavau in the north. Tonga Tapu 162
contains about half the Kingdom's habitable area, and half its people 311
(16,234). Ha'apai has nearly the same population as Vavau, but less
than half its habitable area.[2] Each group has a serviceable port, Nukualofa 504
in Tonga Tapu being the most important and also the capital.

Climatically[3] the Kingdom is well favoured, since it lies in the zone 132
of the southeast trades, and has no orographical obstructions to cause rain and high humidities. The tropical Niuas have much the same rainfall and temperature as Apia and Suva, but the other groups have

---

[2] The following statistics illustrate the size, distribution, and density of the population (1939 Census) 161 162

Group	Population	Tongans	Habitable Area	Persons per sq. mile	Percentage of Tongans
			sq. miles		
Tonga Tapu	16,234	15,324	134.8	120	47
Ha'apai .	7,483	7,383	24.3	308	22
Vavau . .	8,199	7,957	56.1	143	24
Niuas . .	2,214	2,198	20.6	108	7
TOTAL . .	34,130	32,862	235.8	145	100

[3] The following climatological statistics (supplied by the Director of Meteorological Services, Air Department, New Zealand) illustrate in outline Tonga's principal climatic characteristics: 132

	Nukualofa	Vavau
Annual mean sea-level pressure (mbs)	1014	1013
Annual mean air temperature (°F)	74	78
Annual mean daily maximum temperature (°F)	80	82
Annual mean daily minimum temperature (°F)	68	72
Average annual rainfall (ins.)	63.45	77.57
Percentage of winds between south and east	72	68
Average wind force in morning (m.p.h.)	8	6
Average wind force in afternoon (m.p.h.)	10	7
Annual average relative humidity (a.m.)	79%	77%
Annual average relative humidity (p.m.)	73%	—
Annual mean of sea temperature (°F)	77	79

22: West

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103
●131
133

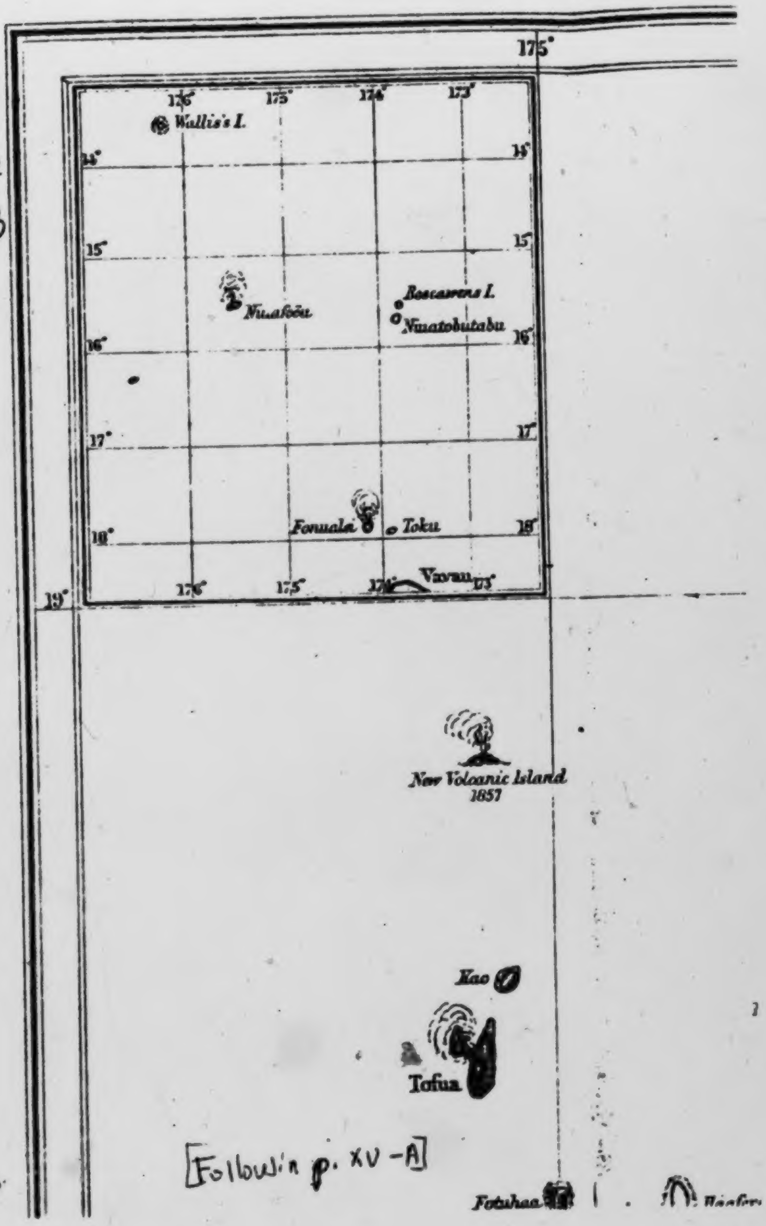
OU9 Tonga OU9

A	B	C
D	E	F

Chart of position of map following p. xv. [facing map]

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

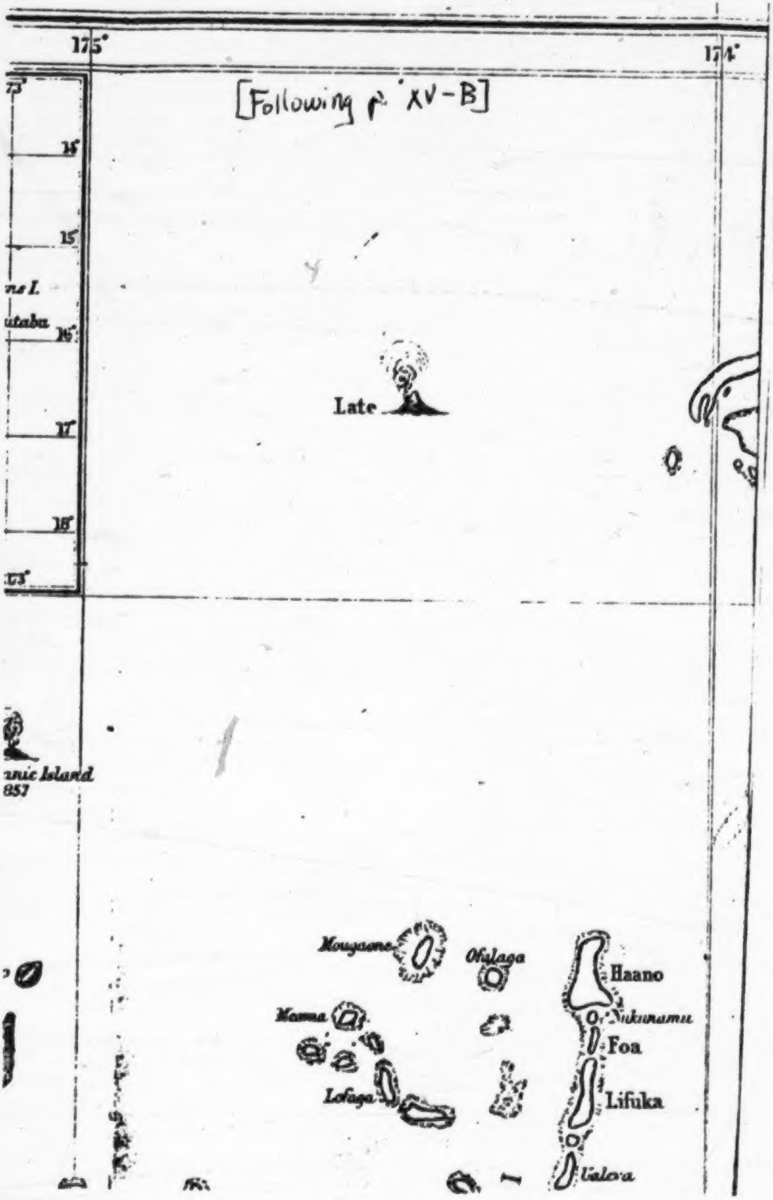
102
103
● 131
133


175°
176°
175°
174°
173°
Wallis's I.
14°
14°
15°
15°
Nuafoou
Boscawens I.
Niuatobutabu
16°
16°
17°
17°
Fonuala
Toku
18°
18°
19°
176°
175°
174°
Vavau
173°
New Volcanic Island
1857
Kao
Tofua
Fotuhaa

[Followin p. XV -A]

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

[Following p. XV-B]


175°
174°
15°
16°
17°
18°
ns I.
utabu
Late
nic Island
857
Mougaone
Ofulaga
Haano
Mama
Nukunamu
Foa
Lofaga
Lifuka
Ualeva

102
103
131
133

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

102
103
131
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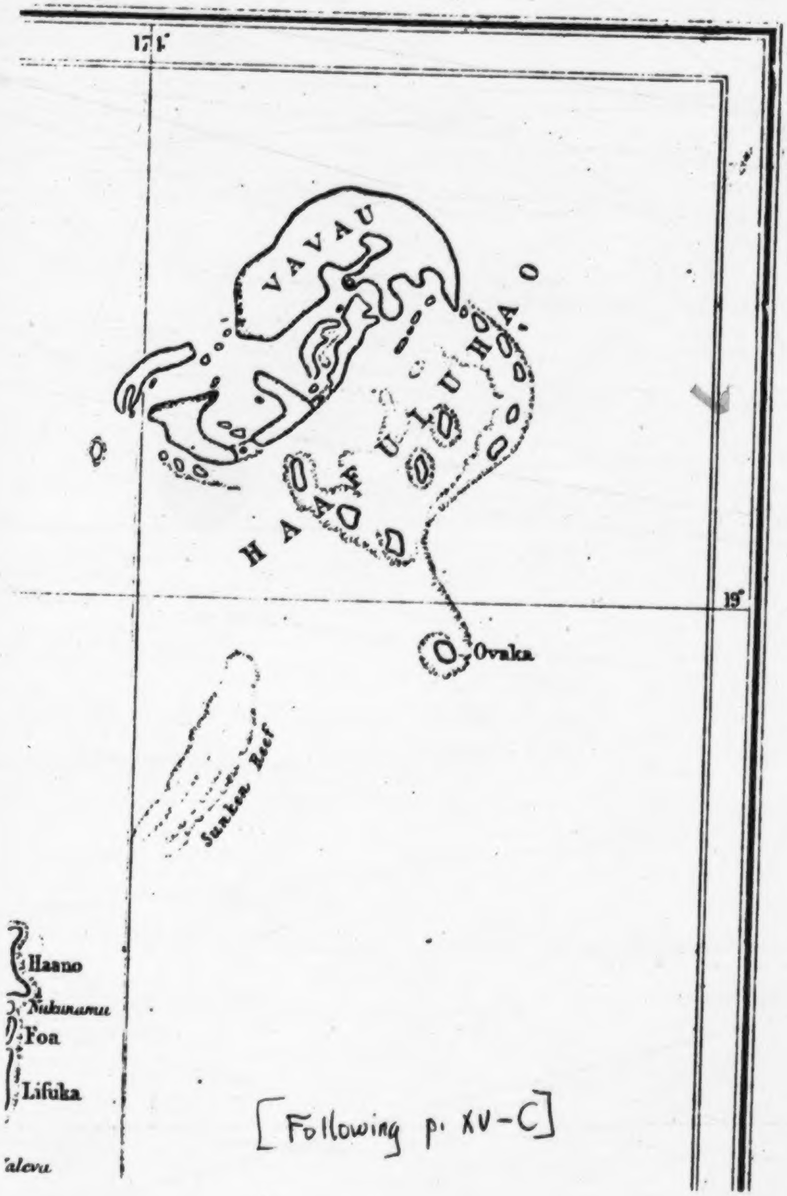
171°
VAVAU
HAAFULUHAO
19°
Ovaka
Sunken Reef
Haano
Nukunamu
Foa
Lifuka
aleva

[Following p. XV-C]

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

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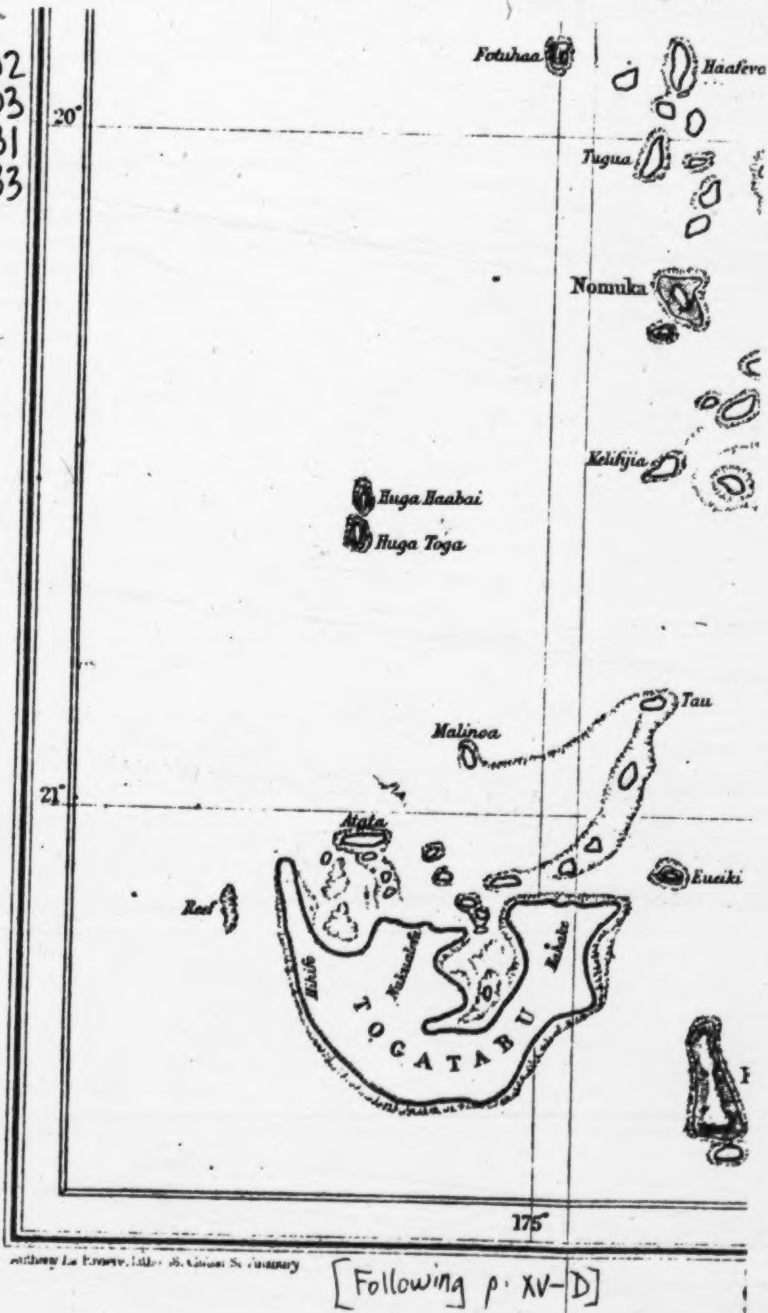
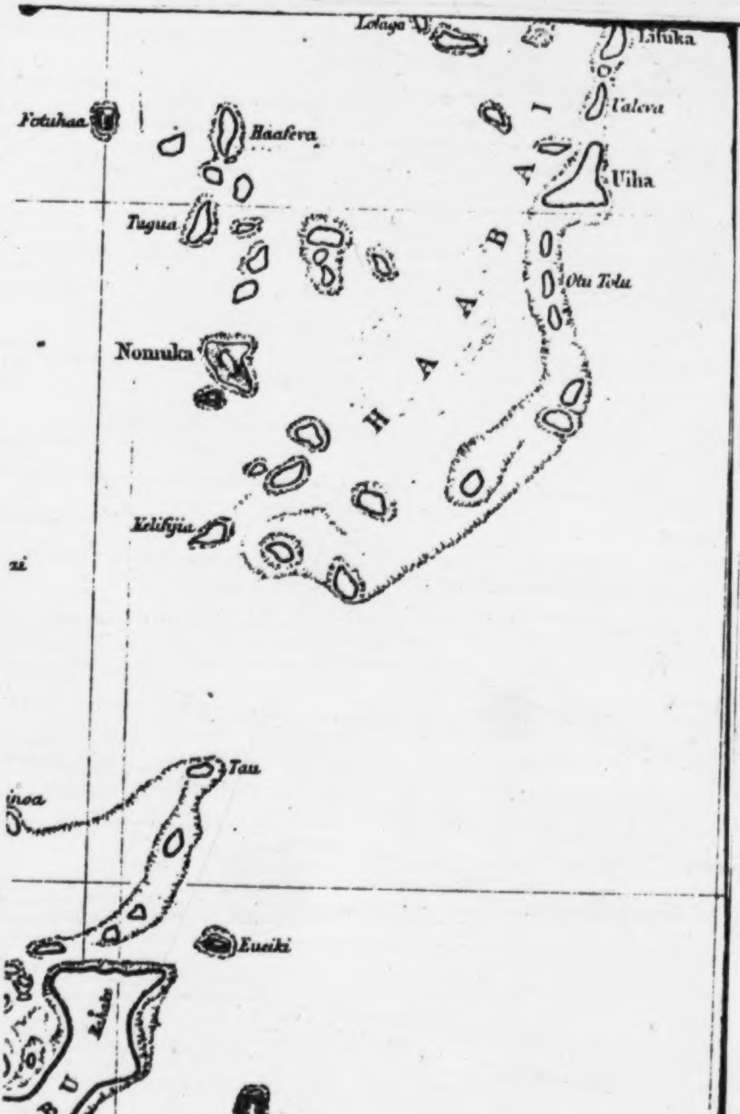
103
131
133


20°
21°
175°
Fotuhaa
Haafeva
Tugua
Nomuka
Kelifijia
Huga Haabai
Huga Toga
Tau
Malinoa
Atata
Reef
Eueiki
Hihifo
Nukualofa
Mua
TOGATABU

[illegible]

[Following p. XV-D]

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9


Lolaga
Lifuka
Fotuhaa
Haafeva
Valeva
Uiha
Tugua
H A A B A I
Otu Tolu
Nomuka
Kelifijia
zi
Tau
inoa
Euaiki
A B U
Eua
175°
West Longitude.
174

102
103
131●
133

[Following p. XV-E]

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

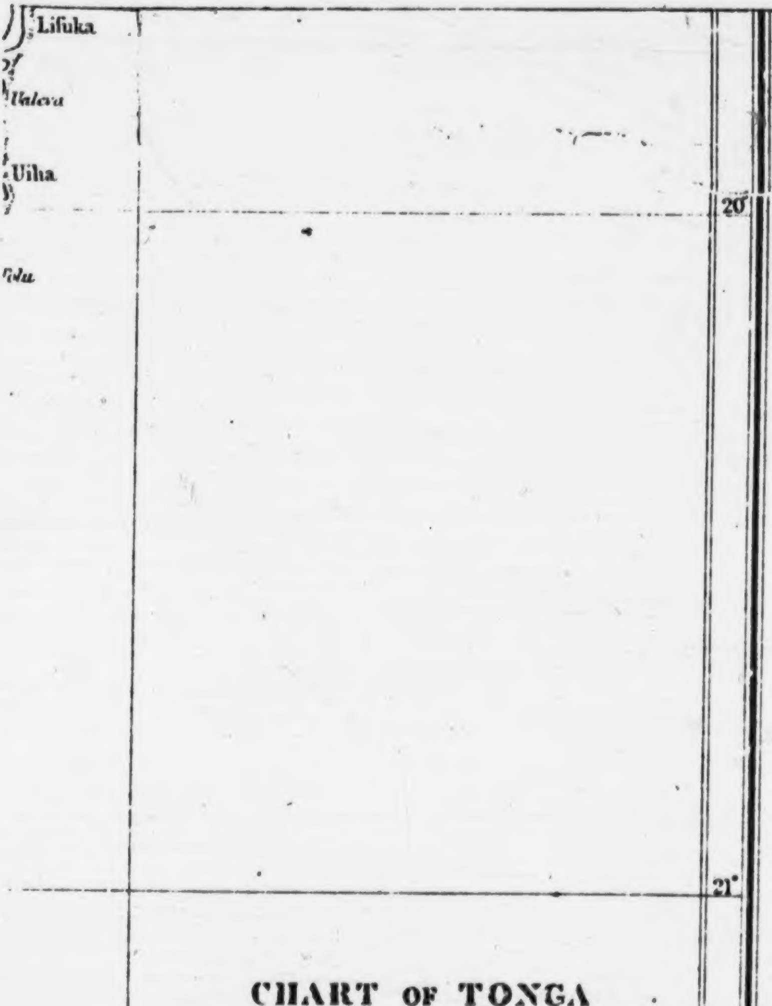

Lifuka
Haleva
Uiha
Ulu
20°
21°
174°

CHART OF TONGA OR THE FRIENDLY ISLANDS.

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131
133

[Following p. XV-F]

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

miles, and the population at not less than thirty millions. These figures, however, must be taken under considerable reserve, seeing that no portion of the globe has been so neglected as this, in regard to those surveys and scientific explorations, upon which alone such computations can be founded with safety. This vast region has been, in recent years, distributed into five portions, called respectively, Malaysia, Micronesia, Melanasia, Australasia, and Polynesia. In some respects these divisions are well-defined and convenient, but, in the present work, we shall not strictly follow them. |21|

By Polynesia Proper, we understand the numerous groups which lie within fifty degrees, on either side, of the prime meridian; and between the fiftieth parallel of south, and the thirtieth of north, latitude. We thus *exclude* the continent of Australia, and the whole of the large and numerous islands of the Indian Seas, and we *include* the islands of Micronesia, and Melanasia. This portion, then, of the insular system of the Pacific Ocean, will be found to extend over 7,000 miles in the one direction, and nearly 5,600 miles in the other. |10| We call the Friendly Islands "South-central Polynesia," |13| because, by drawing a semi-circular line through the southern portion of the region indicated, starting from the Ladrone Islands in the west, to the extremity of the Paumotu group in the east, the Friendly Islands will be found lying, about midway on the line, between 15° and 23° south latitude, and 173° and 176° west longitude.

|33 Like most of the smaller archipelagoes of Polynesia, the Tonga Islands trend in a direction from north to south, indicating, beyond doubt, a striking polarity in their structure, although this is still

133 more marked in some other groups, such as New Caledonia, and the New Hebrides.

174 It will also be observed, that the Tonga Islands
are the nearest of any to those of New Zealand,
[131] from which they are distant about one thousand
miles. Hence, it has generally been concluded, that the islands of New Zealand were peopled from thence: a supposition that is strongly borne out, by the close affinity existing between the physical character and habits of the inhabitants, and by the correspondence of their language. Native tradition in New Zealand, indeed, declares, that the first inhabitants arrived from the northward, in two separate canoes, and at a considerable interval of time. The later voyagers are said to have become assured of the presence of their friends in the island, by discovering, on the shore, the beautiful red feathers of the taviki, a bird whose tail feathers are much esteemed by the Tonguese, and others of the South Sea Islanders, in making head-dresses, and in the decoration of mats.

131 The Fiji Islands lie to the westward, and W.N.W. of the Tongan. A distance of about two hundred miles of clear sea separates their nearest points of approximation. The Navigator, or Samoan Islands, lie to the north and by east, at a distance of about four hundred miles. There are, however, a few isolated islands, tributary to Tonga, lying midway on the direct track of navigation. In an easterly direction, the nearest island, to the Tongan group, is that of Niue, or Savage Island, distant about one hundred and sixty miles.

101 It will be seen, by a reference to the chart, that
the Tonga Islands comprehend three principal and
[133] well-defined groups. Fifteen of the islands rise to

a considerable height; thirty-five are moderately 101
elevated; and the rest are low. The three divisions [133]
have generally been known as the Tonga, Haabai, 101
and Vavau Islands. The latter group, however, is 103
frequently called by the natives Haafuluhao.

The Tongan group contains Tonga, the chief island, from which the group is named, and which, by way of distinction and eminence, is most generally called Tongatabu,—Tonga the Sacred. Next in importance are the islands of Eua, Eueiki, Bagaimotu, Atata, Fafa, and a goodly sprinkling of smaller and uninhabited islets. With the [133]
single exception of Eua, none of the Tongan group reach any considerable elevation.

The Haabai Islands are separated from the Ton- 131
gan, by about thirty miles of clear sea at their 133
nearest points, from whence they extend northward over a distance of seventy miles. The whole group is intersected by alternate reefs and deep sea channels, which make the navigation both intricate and dangerous to strangers. They are all of low elevation, with the exception of the volcanic islands of Tofua and Kao. Lifuka, Haano, Foa, [103]
Lofaga, Mougaone, Uiha, Fonualoa, Uoleva, The Otu-Tolu, Nomuka, Haafeva, Tugua, Fotuhaa, and the two islands already named, are the principal included in this group.

Between Tonga and Haabai there are also two [103]
high islands, called Huga Tonga and Huga Haabai. They lie about twenty miles to the westward of the usual course from the one group to the other: and they are separated from each other by a deep sea channel of about one mile and a half wide. They [136]
give clear evidences of volcanic origin, and are haunted by innumerable flocks of sea-birds. Access

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

131 133 to these islands being extremely difficult, owing to the precipitous nature of the coast, and lying also, as they do, very much to leeward, they are uninhabited, and are but seldom visited by the people.

502 731 In 1851 the following incident occurred in connexion with this locality. Vakajuiola, a brother of the late King Josiah, of Tonga, with a number of his people, was on a voyage from Haabai to the former island, when a severe storm overtook them. It was late in the day, when they bore away before the gale, expecting, if the wind continued, and the canoe held together, to be driven to the Fijis. The storm, however, rapidly increased. The large sail was torn into shreds; and, owing to the heavy sea, it was momentarily expected that the kalia would part in sunder, and consign the sixty persons on board to a watery grave. Providentially, the vessel was driven straight between the two Hugas, and there it did indeed part in sunder, and become a total wreck. Not a single life, however, was lost. Some gained the shore of the one island, and some that of the other; but all, with great difficulty, effected a landing, and scrambled somehow to the summit of the cliffs. Here they remained for several weeks, subsisting upon cocoa-nuts, birds' eggs, and any edible roots they could find. Starvation at length stared them in the face. Meanwhile it was resolved, by some means or other, to construct a small canoe, or *bobao,* in which one of the party should attempt to paddle his way to Tongatabu, a distance of about forty miles, for assistance. By the aid of one plane-iron, mounted as an adze, a small *bobao* was made, in which a native Teacher embarked on his perilous undertaking. He reached our Mission

station at Hihifo, in Tongatabu, in safety, but greatly exhausted; and from thence canoes were immediately dispatched for the rescue of the sufferers, all of whom were safely brought away. The first escape, and subsequent endurance of suffering, on the part of the castaways, was all the more remarkable, because a goodly number of them were women. But it may be here remarked, in passing, that Tonguese women are quite as clever and expert in swimming as are the men; although, of course, their physical powers would not enable them to hold out so long as those of the sterner sex.

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Leaving the Haabai group, and proceeding still to the northward, another volcanic island is met with, called Late. This island lies in the same parallel of distance as the two Hugas, from the main chain of islands, and is therefore considerably to the westward. It occupies a position about midway between Haabai and the Haafuluhao, or Vavau group. It also is uninhabited, but it is an island of considerable resources, and it is frequently visited by voyagers proceeding between Tonga and Fiji. In making a final start for the latter islands, Late affords a good point of departure for the native navigators from Vavau. The nearest of the Fijis lie almost due west from thence, and Late, being a lofty conical island, is visible from a great distance.

131
133
[103]

The Haafuluhao group is the most variegated and beautiful of the Friendly archipelago. Of the islands which compose it, Vavau is the largest and most important. Then come Bagaimotu, Falevai, Niuababu, Huga, Oloua, Koulo, Ofu, Ovaka, and a number of islets, chiefly lying to the eastward, in close proximity to each other.

[103]

Stretching still further to the north and east, we 131
meet with Toku, Fonua Lei, Niua Tobutabu, [103]
Boscawen's Island, and Nuia Foöu. These latter
islands have separate governors or kings, who [634]
administer affairs without any regular oversight
from the chief government in Tonga. Nevertheless,
they are thoroughly tributary, and are under [619]
the control of the Tonguese sovereigns, whenever
necessity arises, or opportunity serves, for intercommunication.

If native tradition is to be credited, the government 173
of Tonga, at one period of its history, extended 619
as far as 13° 30′ south latitude; viz., to 101
Wallis's Island, which, in the native language, is
called Uvea. Indeed, that island is said to have
been peopled from Tonga; but in what way there
is nothing to show. The obvious similarity of [174]
language seems to justify this tradition; even
although great, and apparently arbitrary, changes
have been made in the meaning and use of words
common to the vocabularies of both. At present 619
Uvea is within the range of the Friendly Islands 101
District Missionary operations; but it does not, in
any way, acknowledge the supremacy of Tonga, and
therefore we do not regard it as forming any portion
of King George's dominions.

Within the comparatively circumscribed limits 133
here traced upon the bosom of the Pacific, we possess
numerous and diversified examples of its peculiar
insular system. We have, in the Friendly group,
islands of varied dimensions, and in every stage of
development, from the isolated coral block, rising
abruptly in mid ocean, to form, most likely, in
process of time, the nucleus of a future island, to
the most perfectly developed and primitive of the

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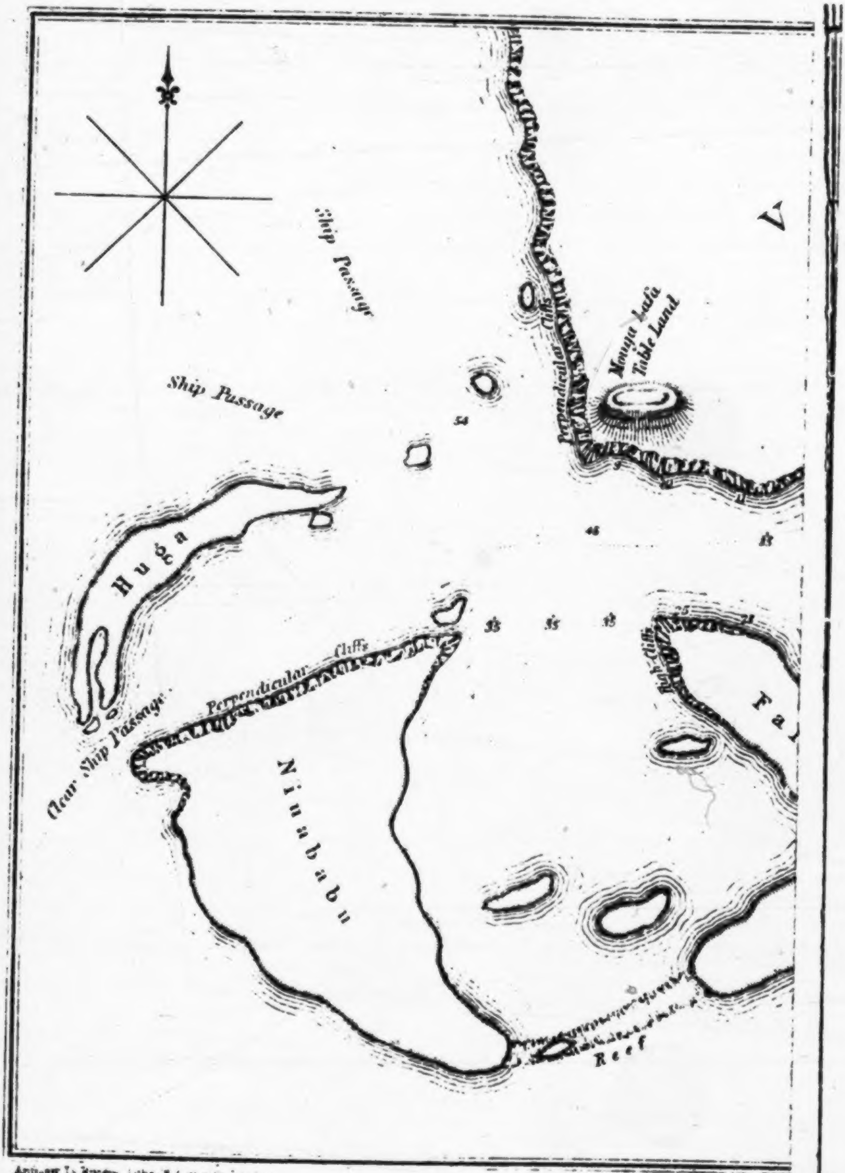
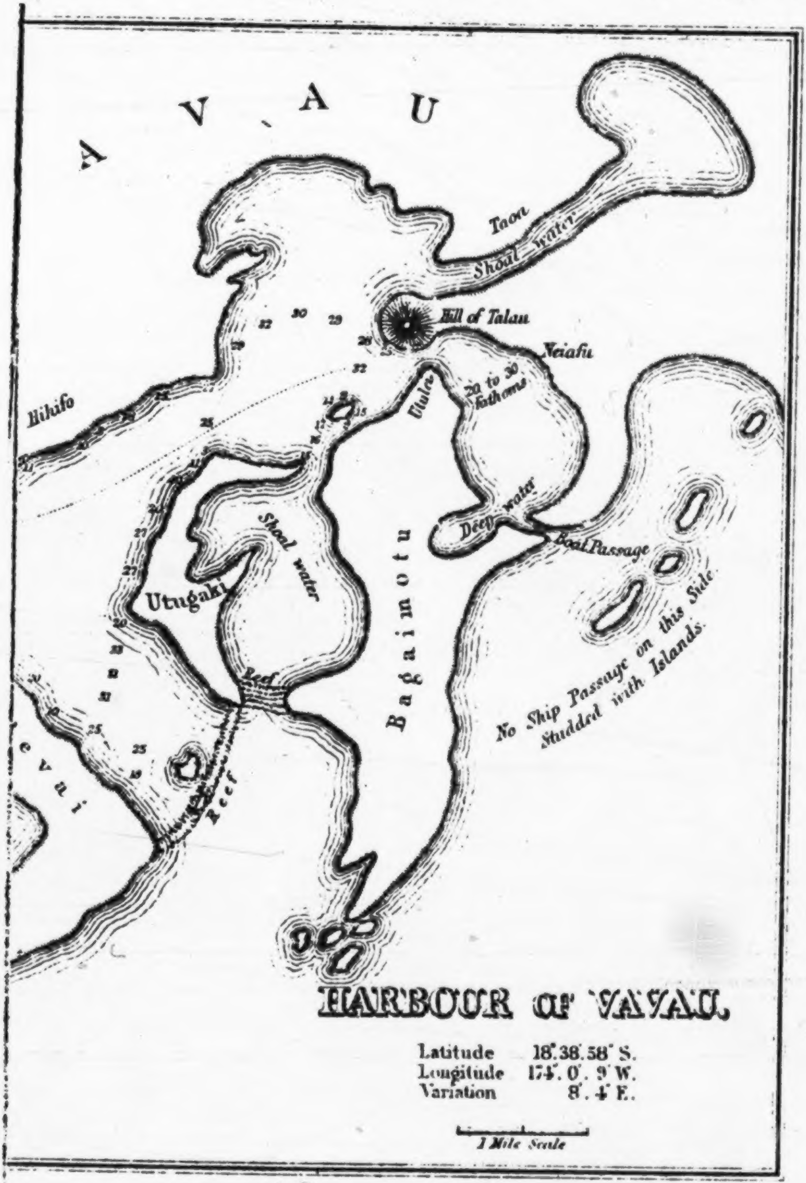
131
133
487


Ship Passage
Ship Passage
Perpendicular Cliffs
Monga Lafa Table Land
V
54
46
13
35
35
18
Huga
Clear Ship Passage
Perpendicular Cliffs
Niuababu
Fa
Reef

[illegible]

[Facing p. 149-A]

102
131
133
487


A V A U
Taou
Shoal water
Hill of Talau
Neiafu
Hihifo
20 to 30 fathoms
Deep water
Boat Passage
Bagaimotu
No Ship Passage on this Side Studded with Islands.
Shoal water
Utugaki
Reef
Reef
1 Mile Scale

HARBOUR OF VAVAU.

Latitude 18°.38'.58" S.
Longitude 174°. 0'. 9" W.
Variation 8°. 4' E.

[facing p. 149-B]

[Uvea]

000 ants, until the time of our own visit thither, and for many dreary months of suffering after that.

Having thus glanced at the main facts connected with the rise and progress of religion in the two Niuas and in Uvea, we now proceed with the details of our own voyage thither; upon which occasion I was accompanied by my esteemed friend and colleague, the Rev. Walter J. Davis.

797 We sailed from Vavau on Monday, June 6th, 1848. Passing in the immediate vicinity of the ruined and still burning island of Fonua Lei about three P.M., we stood on, and reached Niua Tobutabu on the following day, about eleven A.M. The
133 island is about six miles long, and two broad. There are several tolerably high hills in the centre, but otherwise the land is low. The population
[162] consists of about six hundred or seven hundred people. Toward its western extremity, the island is divided by an inlet of the sea; and there is, in that direction also, an immense sandy flat, stretching away toward another lofty conical island, called Tafahi, which lies about seven miles distant from Niua Tobutabu. Tafahi is certainly an extinct volcano, and it attains an altitude sufficiently high to make it plainly visible from a distance of fifty miles. Niua Tobutabu is the Kebble's Island of
● 131 English charts; and Tafahi is, probably, that
114 known as Boscawen's Island. The latter name has been sometimes assigned, in the charts, to Niua Foöu, which is evidently a mistake; for its relative position will not correspond at all with that describing Boscawen's Island. Considerable difficulty is felt in identifying this island, as well as many others in the Pacific Ocean, whose position has not been properly defined, owing to their remoteness

131

[Niua Tobutabu]

from the usual tracks of navigation. The charts 114 are often at fault, both as to the locality and names of many islands.

The day being fine, we experienced very little 797 difficulty in landing. We were met by the chief teacher, and a number of the people, with whom we set off across the sands. The walk was rather fatiguing; but we arrived safely at the town, and were [634) immediately conducted to Maatu, styled Tui-Niua, or King of Niua. The remarkably narrow limits of his dominions evidently never troubled his mind, or distressed those of his subjects. The humblest of the company present moved along with a natural dignity and grace, that any courtier or monarch might have envied. We have already had occasion also to show that, although few in number, and a "feeble folk" in many respects, yet these Niuans were not wanting in stirring enterprise or true courage.

Even before we reached the town, the great [202] wooden drums had been sounding, to give notice of [534) our arrival, and to summon the entire population from their daily occupations, in preparation for the various religious services about to be held. There being no safe anchorage off the island, the visits of the Missionaries are necessarily very brief; while such a multiplicity of onerous duties devolve upon the visitors, that the greatest expedition must be observed, and they can scarcely find time either to eat or sleep.

Let us look for a moment at the work to be done. No visit from a Missionary had been received by Niua Tobutabu for several years. The attempt had been made in the previous year, but failed through the violence of the sea and wind. The doings therefore of the teachers over a considerable period of time had to be reviewed. The lists of church members

32: Staveley & Douglas D-4 (no date) 1959
OU9 Tonga OU9

BLOOD GROUPS IN TONGANS, (POLYNESIA)[1]

By J. M. STAVELEY and R. DOUGLAS

125 RESULTS OF TESTING 200 Tongans for various blood groups and abnormal haemoglobins are the subject of this report. A blood group study of this population has been reported by Kooptzoff and Walsh.[2] These workers tested 102 subjects for the A_1A_2BO, MNS and Rh systems. We have extended the blood group systems tested to include P, Lewis, Kell, Duffy, Kidd, Diego, Wright, Vel, Sutter and the serum Gm groups. Saliva was also examined for secretion of ABH and Le^a substances, and a search was made for abnormal haemoglobins.

GEOGRAPHICAL FEATURES[3]

101 The kingdom of Tonga consists of about 200 islands in three major groups, Tongatapu in the south, Vava'u in the north, and the Ha'apai 133 group lying between these. The islands of Vava'u are generally high and mountainous, those of Ha'apai and Tongatapu low-lying and of coral 131 formation. The kingdom lies between 15° and 23° south and 173° and 177° west, and is free from malaria.

[361] Nuku'alofa, the capital, is on the main island of the southern group, Tongatapu, and lies 1,100 miles north-east of Auckland. The population 161 162 of the kingdom in 1959[4] is given as 58,351, of which 56,669 are Tongans, and 1,682 part Tongans, Europeans and others.

173 According to tradition, the inhabitants of Tonga came from Samoa somewhere about 950 A.D.

COLLECTION OF SPECIMENS

125 With the approval of the Government of Tonga, Dr. Sione Tapa, 126 Chief Medical Officer, generously undertook the selection of the subjects and the collection of the specimens. In this work, Dr. Sateki Tupou, Assistant Medical Officer, played a big part. From each selected person, a clotted blood specimen and blood in Alsever's solution with added antibiotics was obtained by venepuncture. The saliva specimen was obtained after the mouth had been rinsed with water, and was heated in a boiling water bath for ten minutes.

[101] The samples from the 200 people concerned in the study were collected in batches of 50; one batch in May 1959, two during July 1959, and one in September 1959. This allowed the collection to take place just prior to the departure of a ship for New Zealand. It also allowed the testing of each batch to be completed during the week after arrival

---

[122] [1] This work was carried out under a grant from the Auckland Medical Research Foundation.

[2] Kooptzoff & Walsh, 1957.

[3] Pacific Islands Year Book, 1956:109.

[4] Pacific Islands Year Book, 1959:111.

39: Gerstle & Raitt C,Q-4,5 (1952-1972) 1974
OU9 Tonga OU9

ILLUSTRATIONS

Page

vi "Boats of The Friendly Isles." Plate 43, betw. pp. 474 & 475 in George Wm. Anderson, *A New, Authentic, & Complete Collection . . .* 113

x [Seal of Tonga.] Adapted from the original by Nick Rott.

xii [Map of Polynesia and Tonga.] Artist: Nick Rott. Adapted from Poignant, *Oceanic Mythology* pp. 20-21, and *National Geographic* March, 1968 p. 328. [102] [131]

2-3 "Pirogues des Iles des Amis." French reproduction of "Boats of the Friendly Isles." Artist: Wm. Hodges. Plate 42, betw. pp. 18 & 19 in Vol. II, James Cook, *A voyage towards the South Pole . . .*

4 "Vue d'Un Hangar abritant la pirogue de guerre du Chef Palou." Artist: de Sainson. Plate 74 in Dumont d'Urville, *Atlas–Partie Historique: Voyage de la Corvette "L'Astrolabe" . . .*

12 *Top*: "Costume de guerre." Artist: de Sainson. Plate 72 in Dumont d'Urville, *Atlas–Partie Historique: Voyage de la Corvette "L'Astrolabe" . . .*

13 "Woman of the Friendly Islands." Artist: Piron. Plate 30, betw. pp. 168 & 169 in Vol. II, J.J.H. de Labillardiere, *Voyage in Search of La Perouse . . .*

14 "Vue Interieure de la Maison des Femmes du Chef Palou." Artist: de Sainson. Plate 73 in Dumont d'Urville, *Atlas–Partie Historique: Voyage de la Corvette "L'Astrolabe" . . .*

27 "Map of Tonga." Betw. pp. 150 & 151 in Sarah S. Farmer, *Tonga and the Friendly Islands.*

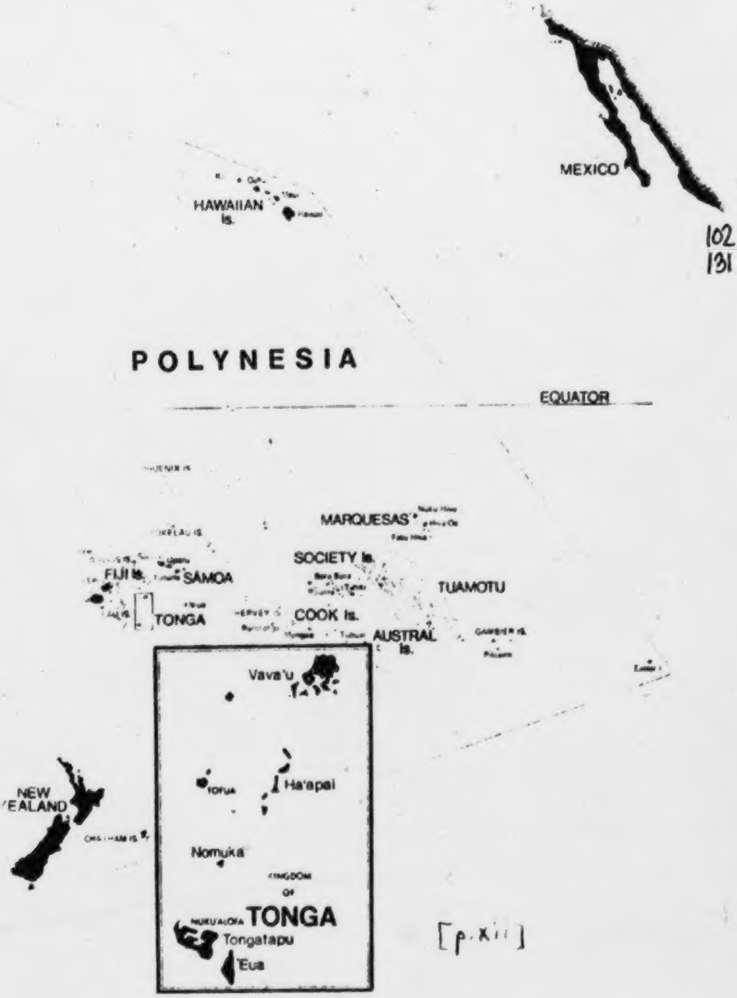
28 "Portrait of Poulaho, King of the Friendly Islands." Artist: J. Webber. Plate 3, facing p. 454 in George Wm. Anderson, *A New, Authentic, & Complete Collection . . .*

29 "The Natche, a Ceremony in Honour of the King's Son, in Tongataboo." Artist: J. Webber. Plate 42, facing p. 466 in George Wm. Anderson, *A New, Authentic, & Complete Collection . . .*

30 "Vue de l'un des Monumens destines a la Sepulture de la Race Royale." Artist: de Sainson. Plate 95 in Dumont d'Urville, *Atlas–Partie Historique: Voyage de la Corvette "L'Astrolabe" . . .*

31 *Top:* "Tombeaux des Chefs." Artist: de Sainson. Plate 101 in Dumont d'Urville, *Atlas–Partie Historique: Voyage de la Corvette "L'Astrolabe" . . .* The following is a list (the reader may be interested in comparing this information with that reported by McKern in 1929) of those who were supposedly buried in each respective *langi*, indicated by numbers on the map, as reported in 1827 to the members of this French exploring voyage: 113 764 766

1. A *Tu'i Tonga* named Fatafehi.
2. Five Kings.
3. A King and his wife.
4. A child.
5. A King.
6. Four Kings.
7. A King.
8. Kings named Tu'ipulotu & Fatafehi, plus two others.
9. Four Kings.


MEXICO
HAWAIIAN Is.
POLYNESIA
EQUATOR
MARQUESAS
SOCIETY Is.
FIJI Is.
SAMOA
TUAMOTU
TONGA
COOK Is.
AUSTRAL Is.
NEW ZEALAND
Vava'u
Ha'apai
Nomuka
KINGDOM OF TONGA
Tongatapu
'Eua

102
131

[p.xii]

433 opportunities within the Kingdom, and will help
Tonga to become as economically self-sufficient as
47 possible. Meanwhile, with a modest budget, she is
179 also striving to improve educational and medical
657 facilities and domestic social conditions.

Internal air-service is now functioning within the
509 Kingdom, and plans for an airstrip to land
[508] international jets are being materialized; Tonga also
intends to establish her own airline, called "Friendly
[505] Islands Air." These things, in addition to expanding
international and local cargo and passenger shipping
▶ [131] services, will hopefully serve to improve Tonga's
communications and relations with the world, and

[p 55-A]

509 will facilitate travel to and from Tonga for residents
505 and visitors.

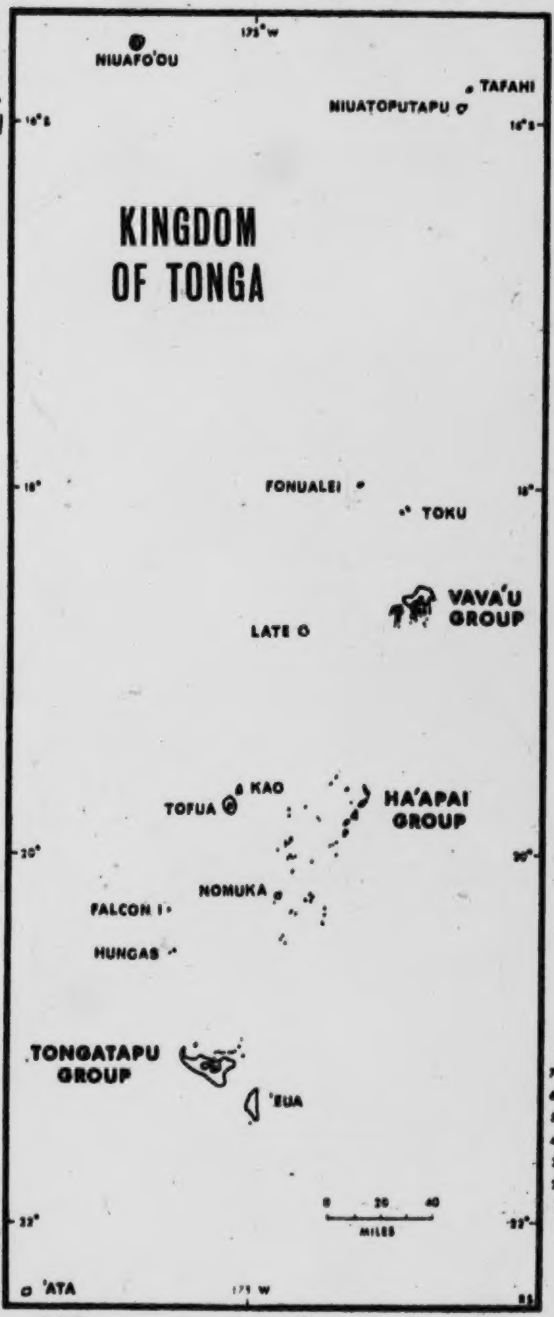
The recent establishment of Tonga's first
131 commercial bank, the "Bank of Tonga," with its
179 modern banking and checking account system, loan
service, and increased interest rates, is intended to
[453] further the economic growth of Tonga. Limited
179 foreign aid is being received from New Zealand, U.K.,
Australia, U.S.A., Japan, Canada, India and other
648 countries. But like all developing nations in the
Pacific today, Tonga is concerned with *autonomous
development*, and it is in this interest only – not to
become the pawn of a major power – that she seeks

[p. 55-B]

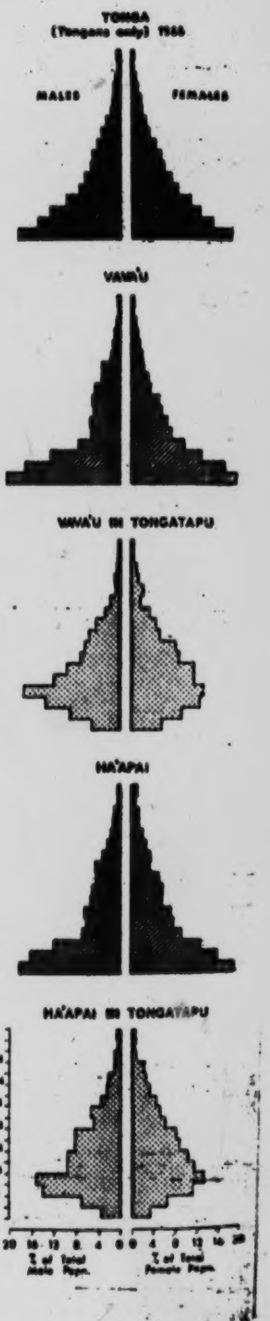
[TEXT CONTINUED ON PAGE 516]

42: Walsh K-4,5 (no date) 1970 OU9 Tonga OU9

161
162
102
● 131


KINGDOM OF TONGA
175°W
16°S
18°
20°
22°
NIUAFO'OU
TAFAHI
NIUATOPUTAPU
FONUALEI
TOKU
VAVA'U GROUP
LATE
KAO
TOFUA
HA'APAI GROUP
NOMUKA
FALCON I.
HUNGAS
TONGATAPU GROUP
'EUA
'ATA
0 20 40
MILES

ONE



SHIFTING CULTIVATION AND POPULATION GROWTH IN TONGA

by

ALARIC MAUDE

The relationship between population growth 121
and agricultural systems has been a central question
in some of the recent geographical work in the Pacific
Islands (e.g. Brookfield, 1962; Clarke, 1966;
Lea, 1965). This paper seeks to contribute to this [161]
body of research through a study of the effect of
population growth on the agricultural system of
Tonga, an island group which in common with a
number of other South Pacific territories has experienced
rapid rates of population increase in recent
decades. The study also attempts to assess the
extent to which the arguments of Ester Boserup on
the relationship between agriculture and population
growth can be usefully applied to the process of
agricultural change in Tonga. Boserup's thesis
(Boserup, 1965) essentially is that the intensification
of traditional agricultural systems from long fallow
to short fallow to multi-cropping occurs only when
forced by population pressure, because such intensification
involves an increase in labour input and
a decrease in output per man-hour. She therefore
regards the agricultural system as the dependent
variable in the relationship between population
and agriculture, and explains differences in cultivation
systems as the result of differences in population
densities.

THE AGRICULTURAL ENVIRONMENT

The chain of some 150 islands in Western Poly- 131
nesia which forms the Kingdom of Tonga has a 161
total land area of 256 square miles and supports a
population of about 81,000 (1968). The economy 433
is overwhelmingly agricultural, and is based largely 439
on subsistence food cropping and the export of
bananas, copra and desiccated coconut. Over 90 361
per cent of Tongans live in the three main groups 133
of Tongatapu, Ha'apai and Vava'u (Fig. 1), where
almost all the islands are of raised limestone formation.
The climatic variable of greatest agricul- 132
tural significance is rainfall, which increases from
a mean of 67 inches at Nuku'alofa (Tongatapu) to

[p. 57-A]

70 inches at Pangai (Ha'apai) and 86 inches at Neiafu (Vava'u). December to March tend to be the 132

102
131
361

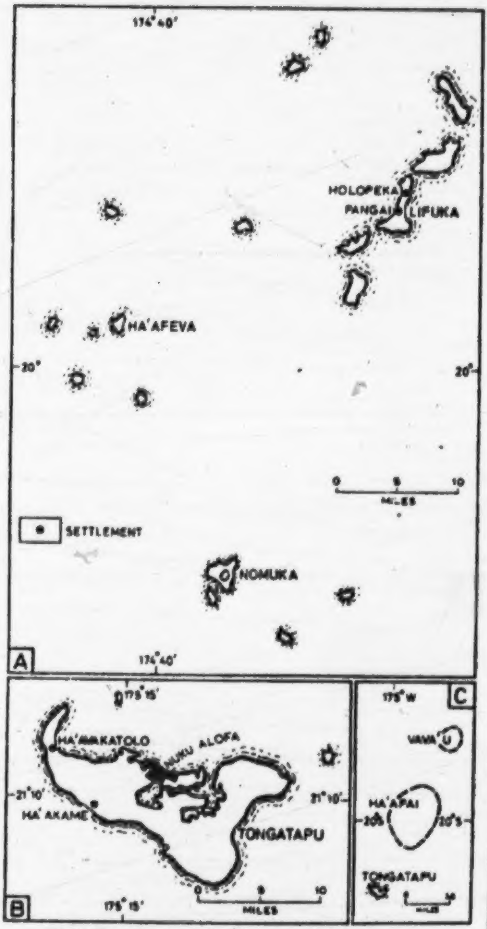

174°40'
HOLOPEKA
PANGAI
LIFUKA
HA'AFEVA
20°
20°
0
5
10
MILES
SETTLEMENT
NOMUKA
A
174°40'
175°15'
HA'AVAKATOLO
NUKU ALOFA
21°10'
21°10'
HA'AKAME
TONGATAPU
0
5
10
MILES
B
175°15'
175°W
C
VAVA'U
HA'APAI
20°S
20°S
TONGATAPU
0
50
MILES

Fig. 1. The islands and settlements of Tonga
A. The Ha'apai group
B. Tongatapu
C. The relative location of the main island groups.

[p. 57-B]

46: Decktor Korn E-5 (1969-1970) 1978 OU9 Tonga OU9
Tongatapu
Motulahi

CHAPTER II

THE NATIONAL SETTING

Since Tonga is little known, the national context of the data presented in this dissertation must be indicated. It is my argument in later chapters that access to land is a limiting factor that may critically affect the range of alternatives available to the individual. Accordingly, this chapter describes the contemporary situation of increasing population and growing shortage of land, followed by an historical account of the system of land tenure. The chapter also provides a further perspective on the particular village in which research was based through a review of criteria of differentiation among Tongan villages. 121 128

Geography and Natural Environment

The islands of Tonga lie east of Fiji and south of Samoa in the southwest Pacific, between 15° and 23.5° South latitude and 173° to 177° West longitude (see Map 1). The northernmost island of Niuafo'ou is over 500 miles from the southernmost island, Ata. There are about 150 named islands, but only thirty-six of the islands were inhabited at the time of the last census, held in 1966 (Fiefia 1968: 38). 131 101 131 162

MAP 1. Oceania

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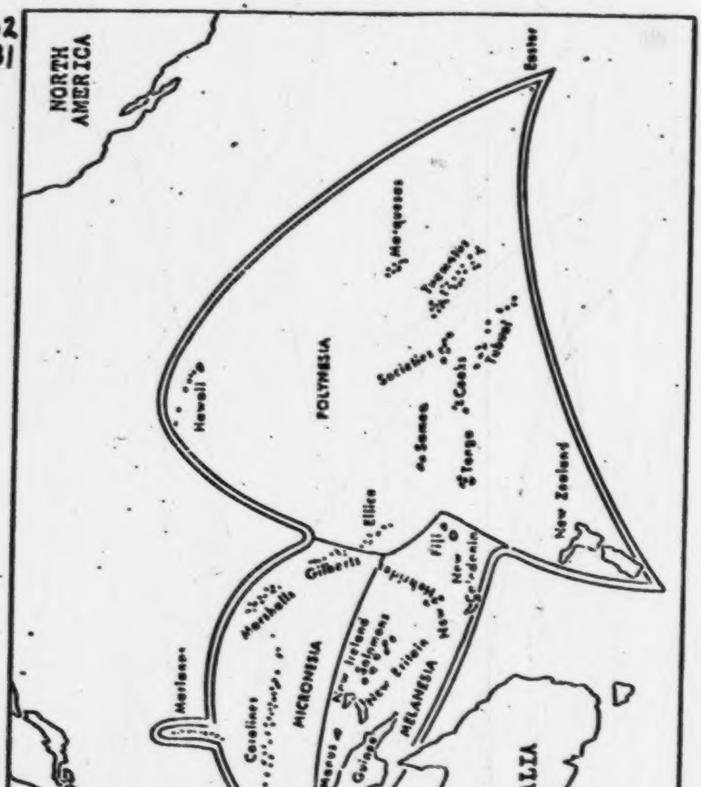

NORTH AMERICA
S-E ASIA
AUSTRALIA
POLYNESIA
MICRONESIA
MELANESIA
Marianas
Carolines
Marshalls
Gilberts
Ellice
Hawaii
Marquesas
Tuamotus
Societies
Cooks
Tubuai
Samoa
Tonga
Fiji
New Caledonia
New Hebrides
New Zealand
Easter
Manus
New Guinea
New Ireland
Solomons
New Britain

Source: Valentine 1963: 48.

162
101
131
133
The inhabited islands comprise 238.81 square miles--almost 90% of the total land area. Thus, most of the islands of Tonga are little more than elevated reefs. The total land area of the country is under 270 square miles, and all but seven of the islands are less than five square miles in area.

Geologically, Tonga is made up of two approximately parallel lines of islands, running north-east to south-west. Those on the western ridge, some ten in number, are of volcanic origin. Nearly all of these islands have steep rocky surfaces and high sea-cliffs, making landing difficult and yielding little land that is suitable for habitation or cultivation. From five to fifteen miles east of the volcanic ridge runs a line of coralline islands. These consist for the most part of atolls set among reefs, but the two largest islands, Tongatapu and Vava'u--which together comprise half the total land area of Tonga--are sloping limestone platforms. 'Eua and Niuatoputapu islands are another variation on the two main types, in that they are volcanic in origin with a limestone cover. They are the only Tongan islands 312 with natural running water. For the most part, the water supply on the other islands is provided by rainfall. During dry spells, recourse is made to the harsh but potable water available from wells dug through the limestone.

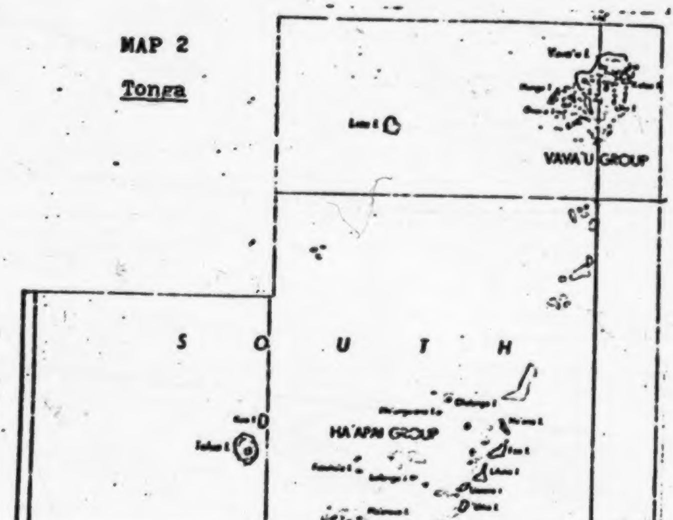
131 The coralline islands of Tonga form three clusters (see Map 2). The Tongatapu Group in the south consists of

[TEXT CONTINUED ON PAGE 37]

102
131

MAP 2

Tonga


VAVA'U GROUP
S O U T H
HA'APAI GROUP
P A C I F I C
O C E A N
TONGATAPU ISLAND
TONGATAPU GROUP
Scale of Miles

Source: Adapted from the end-map in Tonga: Report for the years 1962 and 1963 (Great Britain 1965).

131 Tongatapu and 'Eua islands and a few smaller islets. The
131 Ha'apai Group consists of numerous small atolls. Fifteen of
162
161 these were inhabited at the time of the 1966 census. The
total area of the atolls of Ha'apai that were inhabited in
1966 is 20.1 square miles, with a population density of 521
131 per square mile. The Vava'u Group lies to the north-east
of Ha'apai. Like Tongatapu, it has a main island that gives
its name to the Group and a cluster of atolls nearby.

The distance between Nuku'alofa and Neiafu, the main
towns of Tongatapu and Vava'u, respectively, is 165 miles
(usually a matter of three days' journey on the government
132 passenger vessel). Within this distance the climate varies
from tropical in the northern islands to sub-tropical in the
south, with a mean annual rainfall of 86 inches in Vava'u
and 67 inches in Tongatapu (although with considerable
variation from one year to the next).

Yams, taro, sweet potato, manioc, breadfruit, bananas,
241
[184] plantains, coconuts and watermelons are grown throughout
Tonga, albeit in differing proportions in different parts
of the country. Except for breadfruit, these crops yield
all year round, and all but watermelons are important
241 subsistence crops. The principal cash crops are bananas,
433 coconuts and watermelons. Bananas and coconut products
[439] (copra and dessicated coconut) make up more than 90% of the
value of Tonga's exports. The nation's economy is based on

161 increased by 36.2%, the increase was not uniform throughout
162 the islands. On the contrary, there was an absolute
decrease in population on nine islands, and only two islands
of more than one square mile in area had an increase in
population of more than 20% over the figure for 1956. These
are the islands of Tongatapu and 'Eua.

● 131 'Eua is a large island a few miles to the south-east
133 of Tongatapu. Because of intervening reefs, it can be
[505] reached only by a roundabout passage after a very rough
[313] sea-voyage of about five hours. The island rises in a
series of rocky terraces to about 1,000 feet above sea level,
with steep valleys that are the major source of timber in
Tonga, leaving relatively little land suitable for cultiva-
tion. For these reasons, the island is not very attractive
161 for settlement. At the time of the census of 1939, the
162 population of 'Eua was only 480. After a volcanic eruption
164
[731] on the northernmost island of Niuafo'ou in 1946, many of
the people of that island were settled on 'Eua; at the
census of 1956, more than 40% of the population of 'Eua over
the age of nine had been born on Niuafo'ou. Besides this
Niuafo'ou influx, the increase in the population of 'Eua
is accounted for largely by migration from other islands,
161 especially by men seeking land. Even so, with an intercensal
162 population increase of 76.2%, the density of population on
'Eua in 1966 was only 100 per square mile, almost the lowest
[133] of any island in Tonga. Moreover, while there is still some

161 land available on 'Eua for settlement and cultivation, there
162 is no possibility that the island could support the kind of
133 density found on most of the other islands, owing to the
nature of the terrain.

161 As Table 2 indicates, the burden of intercensal
162 population increase and inter-island migration has fallen
166 mainly on the island of Tongatapu. Tongatapu has 40% of
[131] the land area of Tonga and 60% of the population. The
population of the island increased by more than 50% in the
161 ten years between 1956 and 1966. Much of this increase has
162 been concentrated in the urban area of Nuku'alofa, the
368 capital of Tonga. Thus, while the intercensal population
increase for Tonga as a whole was 36%, and the increase for
the rural areas of Tongatapu was 42%, the increase for the
Nuku'alofa urban area was 79%. This includes the one-time
village of Haveluloto, now virtually a suburb of Nuku'alofa,
which in 1956 had a population of 292 and in 1966 had a
population of 1,334.

161 In summary, there have been two kinds of population
162 flow in Tonga associated with the increase in population.
166 One kind of migration has involved settlement on islands
that have land available for cultivation (primarily the
island of 'Eua, but also some resettlement on Niuafo'ou
beginning in 1958). The second flow has been towards the
island of Tongatapu. On the remaining islands, the total
number of people has remained relatively constant, but

The chapter first describes the layout and look of 128
the village, followed by an account of the history of
settlement at Motulahi and a brief demographic description
of the people resident in the village at the time of my
fieldwork. It will be seen that the effects of increasing [161]
population and inter-island migration have been marked in [164]
Motulahi for more than thirty years and have contributed
to the diversity of the present population. Materials
presented in this chapter also illustrate something of the
possible range of variation in the relationship between a
Tongan noble and his people, particularly as this relationship
is affected by population pressure and other developments
in Tonga over the past few decades.[1]

The Look of the Village

Motulahi is located about six miles from Nuku'alofa. 361
The residential part of the village lies on either side [101]
of a mile-long section of the main road running from town [131]
towards the eastern end of the island. Immediately to the
north is the marshy area that borders the lagoon, while on
the other side agricultural allotments run about a mile and
a half to the sea (see Map 4). As in all Tongan villages,
kolo (the residential part of the village) is distinct from
'uta (the land divided into agricultural allotments). In

[TEXT CONTINUED ON PAGE 66]

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[1] For further description of relations between a noble and his people, see Marcus (1976) and Rogers (1968).

121 feature characteristic of these societies is the optative and changeable nature of the composition of household groups.

Fluctuating patterns of household composition have received less attention than other features that are characteristic of Oceanic societies. Usually they are discussed within the context of studies of land-holding groups, and they have generally been treated either as a secondary aspect of ecological adaptation or as a by-product of the flexibility of social organization in these societies. Studies that focus on actual settlement patterns, however, are more actor-oriented than are studies of land-holding groups. This different focus directs attention to what I take to be a lack of conceptual clarity in the use of such terms as "option" and "choice" in discussing the diverse behavior of different people in a society. This problem emerges in the final section of the paper, where I consider the meaning of the data that are presented here.

VARIATIONS IN HOUSEHOLD STRUCTURE IN A TONGAN VILLAGE

101 Tonga, a country of about 150 islands, lies east of Fiji and south of
131 Samoa. (It is also known as the "Friendly Islands"—a name given by
175 Captain Cook, who visited Tonga in the course of his voyages of 1773-74
162 and 1777.[1]) About 40 of the islands are inhabited, with a total
161 population in 1970 of more than 80,000; three-fifths of the people live
131 on the main island of Tongatapu. The total land area of the country is
about 256 square miles, two-fifths of which is Tongatapu.

361 Although there are only four centers of administration and com-
162 merce in which social differentiation is such that they can properly be
called "towns," about one-third of the total population is clustered in
these areas (two are on Tongatapu). The remaining population lives in
villages that are dotted throughout the islands in a nuclear pattern of
village settlement; this settlement pattern is largely the result of
practices established during a period of civil war that lasted from 1797
433 until the mid-1800's. Most of the people who live in the rural areas and
many of those who live in the towns are wholly or partially dependent
for their livelihoods on peasant agriculture.

592 There is no consensus among Tongans on what composition
829 constitutes the ideal household, but all adults would agree that the ideal
household is one in which I, the speaker, am the head. Most Tongans
would probably say that a household ordinarily comprises a single
family unit consisting of a married couple and their unmarried
children. Not all households conform to this pattern, however. In fact,

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177 [1] Tonga was first visited by Europeans in 1616, but sustained contact with Europeans did
not begin until almost the end of the 18th century. Despite considerable European intervention
777 since then, including the Christianization of the entire population before the end of the 19th
648 century, Tonga has remained formally independent. In 1970, the Kingdom of Tonga joined the
British Commonwealth of Nations.

On the 10th Feenough dined on
262 board as indeed he did every day, after we had dined some of his
412 servants brought on board a mess for him, it consisted of fish soup and
634 yams; the fish and soup was brought off in a Plantain leafe. Instead of
648 common water to make the soup they had made use of Cocoanut
water in which the fish had been boiled or stewed; this was probably
252 done in a wooden vessel with hot stones. I tasted of it and found it so
good that I had afterwards fish dress'd the same way and found it
very good though my Cook did not come up to theres.

122 SUNDAY 11*th*. Finding that we had quite exhausted the island of all
most every thing it produced I this day got every thing off from the
[634] shore, intending as soon as the Discovery had recovered her best
[648] bower anchor, to proceed to an island called Happi,[1] laying to the NE
where Feenough told me I should meet with every thing I wanted
and strongly importuned me to go thither before I visited Tongatabu.

Mon. 12 Tues. 13 Wed. 14 The 12th and 13th was spent in recovering the Discoveries Anchor
which was at last accomplished[2] and on the 14th in the Morning we
weighed anchor and steered for Aghao,[3] with a view of passing to the
NW of the small islands that lay to the North and NE of Anamocka,[4]
[634] as I could not be assured of a passage amongst them. Feenough and
some others remained on board till near noon when they embarked
[648] in a Canoe and stood in amongst [the] islands.[5] At 4 PM being the
length of Ogodoo[6] we steered to the north, leaving Omattafoa[7] and
Aghao on our larboard, keeping along the West side of a reef of rocks
which lay to the westward of Ogodoo, till we came to their no[r]thern
extremity round which we hauled in for the island with a design to
anchor for the night, but it came upon us before we could find a place
in less than 55 fathom water, and rather than come to in this depth I
choose to spend the night under sail.

---

[1] Ha'apai is the penultimate northerly group of Tonga, not a single island. Clerke got it as 'henua Arpi': 'henua' = conventional Tongan *fonua*, cf. Tahitian *fenua*, Maori *whenua*. He adds, '. . . the word Arpi I find in their Language bespeaks a cluster or Group of any thing wherever it is applied'.—17 May. Here he has, quite intelligibly, been confused by another word, '*api 'api*, which means crowded or full (as of a road or a basket).

[2] 'On Tuesday Afternoon chiefly by means of some Oyl thrown on the Water which renderd the Surface so smooth that the Anchor was seen at the bottom altho' in 17 fathoms, and the position in which it lay discoverd.'—Edgar, 8 May.—'This Anchor may in the course of the Voyage be of such Consequence that I am determin'd nothing but a conviction of an impossibility of getting it, shall send me away without it.'—Clerke, 10 May.

[131] [3] Kao, the beautiful cone-peaked island, 3,380 feet high and thus a prominent mark, two miles NNE of Tofua. It lies due west of Ha'ano, the most northerly of the bigger islands of the Ha'apai group.

[4] The low islands of the Kotu or Ha'apai Lulunga group, small, scattered, but linked up with dangerous reefs, shoals, rocks and breaking seas, and without good anchorage. For Cook's complicated track about this group and Ha'apai see Fig. 5.A

[502] [5] '. . . thier rate of sailing was about 3 feet to our 2, and in turning to windward they sailed above a point nearer to the wind than our Ships when sharp trimmed.'—Burney.

[103] [6] Kotu, the westernmost island of its group. [7] Tofua.

A [See category 102 , p. 104--Analyst]

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

THURSDAY 15*th*. At day break the next morning steered to the East 122
for the passage between Fodua and Callefango,[1] with a small breeze
at S and SSE. About 10 o'clock Feenough came on board and re- [634]
mained with us all day, he brought with him two hogs & a quantity [648]
of fruit, the last was very exceptable as our stock was nearly expended. [431]
At Noon the latitude was 19°49′45″ S and we had made 7 M. of lon-
gitude from Anamocka; Amattafoa, or Otafoa[2] bore N 88° W, Aghao
N 71° W, Fodua N 89° W and Afeva[3] S 12° West. After passing Fodua we 122
met with a reef of rocks which, as we had but little Wind, gave us 103
some trouble to keep clear of them, they lay between Fodua and An-
neniva,[4] a small low isle which lies 7 or 8 miles from Fodua in the 131
direction of ENE. Fodua is a small island of middling height and bounded all round by a steep rock; it lays S 67° E distant 6 leagues from Aghao, and 3 from Ogodoo in the direction N 33° E. Being past 122
the rocks just mentioned we hauled up for Anneneva in hopes of finding anchorage, we were again desapointed and obliged to spend the night making short boards, for although we had land in every direction the Sea was unfathomable.

FRIDAY 16*th*. At Day break in the morning of the 16th with a gentle breeze at SE steered NE for Happi which was now in sight. The Wind [133]
Scanting upon us we could not fitch, so that we had to ply to windward in doing of this we once passed over some Coral rocks on which had 6 fathom water,[5] the moment we were over them had no ground with 80 fathom of line; at this time the isles of Happi bore from N 50° E to S 9° W. We got up with the no[r]thermost of these isles by Sunset and there found our selves in the very same situation as we were the two preceding evenings, so that we had another neight to

---

[1] Fotuha'a, a flat-topped island, with a coast-line of cliffs, about 9 miles NNE of Kotu; [103]
and Lofanga, about the same distance east of Fotuha'a. The passage is clear, except close [131]
to Lofanga.

[2] *Amattafoa, or Otafoa*: Cook, one imagines under the instruction of Anderson, is getting closer to the proper name of the island, [O] Tofua. Cf. *Voyage*, I, p. 237, n., where Douglas remarks on 'the great difficulty of knowing accurately the exact names of the South Sea Islands, as procured from the natives', and compares Cook, Anderson and Tasman.—'Captain Cook's Amattafoa, is, with Mr. Anderson, *Tofoa*. . . . Mr. Anderson's great attention to matters of this sort being, as we learn from Captain King, well known to every body on board, and admitted always by Captain Cook himself, his mode of spelling has been adopted on the engraved chart of the Friendly Islands; which has made it necessary to adopt it also, in printing the journal.' This is an enlargement of brief notes by Douglas in the MS, f. 127v; and there are other notes on names, based on Anderson. Bligh AL has a cantankerous and partly illegible comment on Douglas's note: 'C. King knew nothing about the Names of the Islands, & Mr Anderson clev[er as] he was could only get them as the ship sailed past, or those he could see at Anchor, . . . of which from one Native's information is obvious, & his names are in gen[eral] very erroneous . . .'.

[3] Ha'afeva, 4½ miles to the east of Kotu, the principal island of the group.

[4] Douglas: 'according to Mr Anderson Neeneeva'; Niniva, within a large expanse of reef.

[5] This must have been the coral Balfour Patch.

[TEXT CONTINUED ON PAGE 105]

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

102
● 131
103

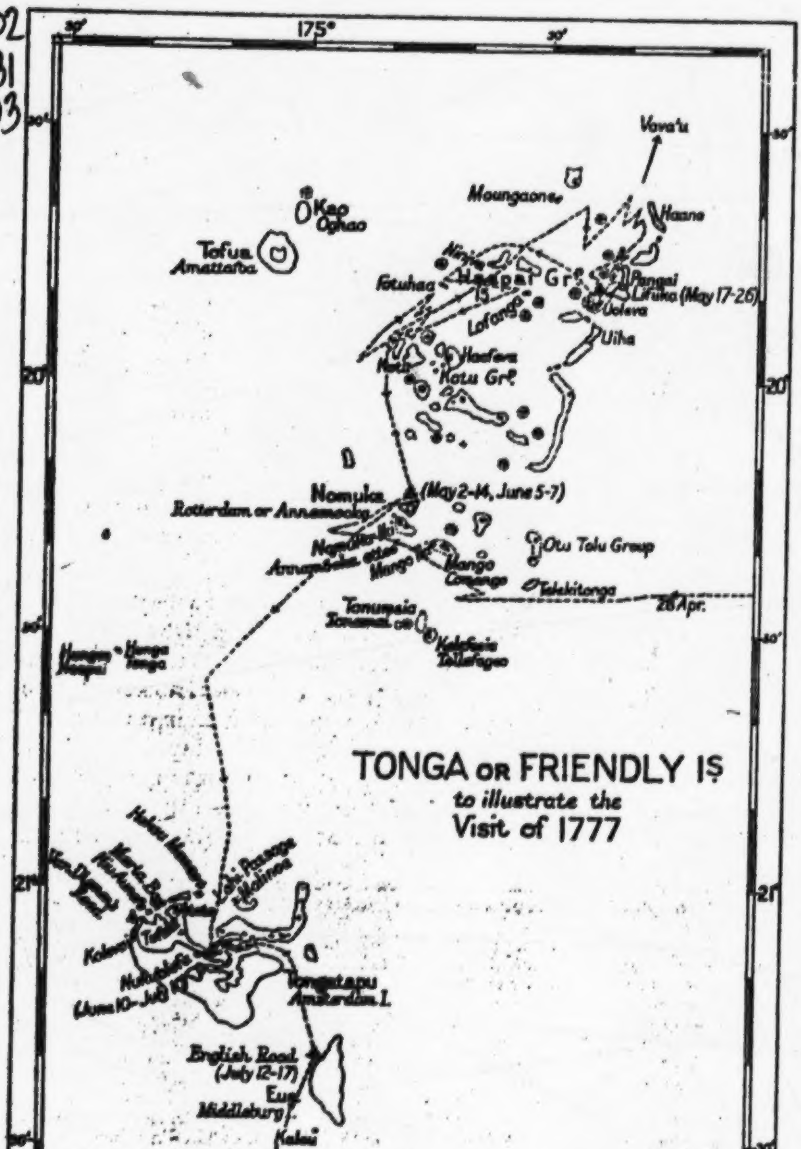
175°
30'
20°
30'
Vava'u
Moungaone
Kao
Oghao
Tofua
Amattafoa
Haano
Hapai Grp
IS
Pangai
Lifuka (May 17-26)
Foa
Uoleva
Uiha
Fotuhaa
Lofanga
Haafeva
Kotu Grp
Nomuka
(May 2-14, June 5-7)
Rotterdam or Annamooka
Mango
Comango
Otu Tolu Group
Telekitonga
28 Apr.
Tonumeia
Tonomai
Kelefesia
Tollefageo
Hunga Haapai
Hunga Tonga
TONGA OR FRIENDLY IS
to illustrate the
Visit of 1777
21°
Malinoa
Kolovai
Nukualofa
(June 10-July 10)
Tongatapu
Amsterdam I.
English Road
(July 12-17)
Eua
Middleburg I.
Kalau
Long. 175° West

FIG. 5

[p.104]

spend under sail with land and breakers in every direction. Towards 122
the evening Feenough who had been on board all day, went a shore
to Happi and took Omai with him, he did not forget our situation 634
and kept up a good fire all night by way of a land mark. 648

SATURDAY 17*th*. At day-light the next morning I sent a boat to look
for anchorage, she soon found a place and we came to in 24 fathom 122
the bottom Coral sand, the northern point of Happi or the north end
of Ha-an-no bore N 16° E, the Southern point of Happi or Hooleva, 133
S 29° W, and the North end of Lefooga S 65° E.[1] Two ledges of rocks [131]
lay without us, the one bearing S 50° W and the other WBN½N distant
2 or 3 miles. We lay before a creek in the reef which made it convenient
landing at all times and we were not above ¾ of a mile from
the shore. By the time we had anchored the Ships were filled with
the Natives and surrounded by a multitude of Canoes, filled also 609
with them. They brought with them hogs, Fowls, fruit and roots
which they exchanged for Hatchets, Knives, Nails, beads, Cloth &c^a^. 439
Fenough and Omai having come on board soon after it was light in
order to interduce me to the people ashore I now accompaned them 634
to the isle[2] for that purpose; The Chief conducted me to a house situated 648
close to the Sea beach which I had seen brought thether but a
few minutes before. In this we were seated that is The Chief, Omai
and my self, the other chiefs, and the Multitude seated themselves in
a circle without before us. I was then asked how long I intended to 634
stay, on my saying five days, Tapah was order[ed] to come and sit by 648
me and proclaime it to the people. He then Harangu'd them in a set 565
speach mostly dictated by Feenough. The purport of this speach as I 537

---

[1] See Edgar's Chart XLVI and Fig. 5. The islands Cook names are Ha'ano, Uoleva and Lifuka. These are three of the largest of the Ha'apai group. But Uoleva does not provide the 'Southern point' of the group: Uiha is a more southerly, and larger island, close to it. Edgar's chart gets the relative positions of the islands quite well, though his names, apart from 'ar-no' and 'Lafugar' are misplaced. [103]

[2] What isle? It is curious that Cook does not more closely define his landing place; but we know from other records that it was at the northern end of Lifuka—cf. *Voyage*, I, p. 242: 'landing at the North part of Lefooga, a little to the right of the ship's station'. This, together with Chart XLVI, where the anchorage is marked, and what is evidently the 'creek in the reef' mentioned by Cook, would argue that the precise place was towards the tip of the island (the point Ahanga), almost at the northern end of the bay called Faka'amumei. Local tradition now records the anchorage correctly enough, but has the landing-place at the point called Muikuku, the south-west end of the bay, just east of which is the village called Koulo. Now Koulo means 'gold'; and why should a Tongan village be thus called? Because, say the old men, when this village was built it was called 'Gold' in memory of Captain Cook's visit; for his boats were full of bags of gold. Cook presented a few medals, left over from the second voyage, at various places on this voyage; and very likely here. Brass or 'platina' may well have come down in tradition as gold. The story was told to me on a trip by cutter to the outlying island Mo'unga'one in July 1958, to explain a sudden surprising question 'What did Captain Cook's ships weigh?' The Tongan knows that gold is heavy; but when *he* first saw—or last saw, for that matter—a gold coin I do not know. [103]

the circle increased pretty fast. At length Feenough came and took 643
his seat amongst the rest, some little conversation passed between 648
these two Cheifs which none of us understood, nor was we satisfied 648
with Omai's interpretation of it,[1] we were however by this time fully 634
satisfied who was the greater man of the two. I took them both
aboard to dinner but only Fattafee sat at table, Feenough made his [644]
Obiesance in the usual way and retired out of the Cabbin; this con- [576]
firmed what the King had before told us, that Feenough could [264]
neither eat nor drink in his presence.[2]

SUNDAY 8*th*. At 8 oclock the next Morning we wieghed and steered 648
for Tongataba having a gentle breeze at NE and about fourteen or
fifteen sailing vessels in company every one of which considerably out [122]
run us.[3] Feenough was to have taken a passage with us in the Ship but
prefered his own Canoe and put two men on board to conduct us to [634]
the best anchorage. We steered SBW by compass the Course the
Canoes steered; at 5 oclock in the evening we saw two small islands
bearing west about 4 leagues distant. Our pilots called the one Hunga
happi and the other Hunga Tonga;[4] they lay in the Latitude of 20°36′ 122
and 10 or 11 leagues from the west point of Anamocka in the direc- [131]
tion of [S 46° West].[5] We continued the same Course till 2 AM the next
morning, when seeing some lights ahead and not knowing whither
they were on shore or on board the Canoes, we hauled the Wind and
made a short trip each way till day-break, when we resumed our Mon. 9
course to the SBW. And presently after saw several small islands a
head and Middleburg and Tongatabu beyond them; the depth of 122
water at this time was 25 fathom over a bottom of broken coral and 133
sand. The depth of water gradually decreased as we drew near the
isles which lie ranged along the NE side of Tongatabu. By the direction of our Pilots we steered for the middle of the island and for
the widest space between the small islands with our boats ahead

---

[1] 'Omai was still too much hurt at having taken a name that was not the highest, to interpret faithfully. . . .'—King.

[2] No inferior could eat or drink in the presence of his superior. We have in another entry for this date a little sign of shipboard friction which is interesting: 'I went on Shore with my Astronomical Quad^{t} & the watch & observed equal altitudes of the Sun in order to determin its Error from mean time; & returned on board again in the Evening very safe, with the watch.—(after the most emminent Danger, & Difficulty of preserving the watch, owing [to] the Pride & obstinacy of our First Lieut^{t} M^{r} Burney.)'—Bayly T. Burney may have been rather a trial to Bayly (cf. II, p. 155, n.), and perhaps Bayly was a bit too solemnly professional for Burney.

[3] 'These Canoes rund us nearly out of sight before the evening, they sail about 3 Miles [501]
to our two, in light winds. They carry about 50 People (& their luggage) in general. But are capable of carryin[g] as many more.'—Bayly T.

[4] Hunga Ha'apai and Hunga Tonga, both high islands, about a mile apart. *Hunga*: 'turned towards'. They are about 31 miles northward of Niu Aunofo, the most northerly point of Tongatapu. Cook's course lay well to the east of them.

[5] These figures are a later insertion in the MS, probably by King.

648 man who had the management of it. A Cup was carri'd to the Kings
643 Brother, with which and his victuals he retired, as did some others
also, and the reason was they could neither eat nor drink before the
276 King; but there were others of a much inferior rank who did both.[1]
574 Soon after the most of them retired, each carrying with them what
victuals he or she had not eat. It is necessary to observe that not one
648 4th part of the Company had either Victuals or drink and some had
643 one and not the other: those who had the Victuals I took to be of the
276 Kings household. The Servants who served out the Victuals and
Cava always delivered it out of their hand siting, not only to the
574 King but to every other person. And altho this was the first time of
644 our landing, and a great many people present who had never seen
264 us before yet no one was troublesome, but the greatest good order
was Observed throughout the whole. Before I went on board I was
648 shewed some pools or holes of fresh Water as they were pleased to
call it; the Water in one was indeed tolerable but it was some distance
Wed. 11 in land and but little of it. The next morning I went over to the
312 island of *Pangymaudoo*,[2] near which we lay, to look for Water being
told there was some there; I was conducted to a small Pool that was
tolerable and had it cleaned out and here it was we watered the
122 Ships. As I intended to make some stay here I got all the Cattle a
shore,[3] a party of Marines with the officer for a guard, set up the
observatory and M^r King resided a shore to attend the observations
and superintend the several works carrying on there, for I had the

---

[648] young persons who had clean mouths and good teeth were allowed to take part in the
chewing. This was not a prolonged process, and the masticated root was kept dry. What
[643] Cook calls 'brewing' was really infusing. He was not always put off by the sight of the
process. 'Capt^n Cook often drank of it, holding it as an argument that seamen should eat
[276] & drink every thing that came in their way, some of our Officers follow'd y^e good example
set them, I must acknowledge either my want of taste or politeness for I could by no means
[574] be brought to taste it in a mixture, contenting myself with taking it in y^e manner of y^e
slaves, the least piece put in y^e mouth fills it with an instant glowing heat, it is nearest in
[129] taste to y^e horse-radish of any thing I can recollect.'—Williamson, 17 July.

[1] '... what at first appears singular, is, that although neither his brother nor any great
chiefs can eat before him, yet his own attendants do & sometimes with him, this cannot be
suppos'd to degrade his dignity & lessen it, as they are not exalted sufficiently to claim any
[563] libertys he does not chuse to grant.'—King, 7 June. The reason for this exception to the
general eating rule was probably that those who were favoured were, as Cook says below,
'of the Kings household'—that is, they were *matapule*, and also *matapule* of foreign origin.
The inconvenience of the eating *tapu*, and other varieties of *tapu*, carried to an extreme of
consistency with personal attendants, might well be very great, but one who was rankless in
any Tongan connection was exempt. Thus Hoakai (Samoan Soakai?) 'a matapule
to the Tui Tonga, was privileged to eat with the Tui Tonga, a thing which no Tongan
might do' (Gifford, p. 141).

[131] [2] Pangaimotu. It is a small island, less than a square mile in area and 15 feet high, 2½
miles north-east of Nuku'alofa.

[825] [3] '... they were much surprizd at our Cattle and called them Boaha,la,hi; which
signifies, large Hogs. ...'—Gilbert. The Tongan expression is *puaka laki*. I have been told
that the Tongans still refer to cattle and other livestock as 'Cook's pigs'.

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

[p. 126]

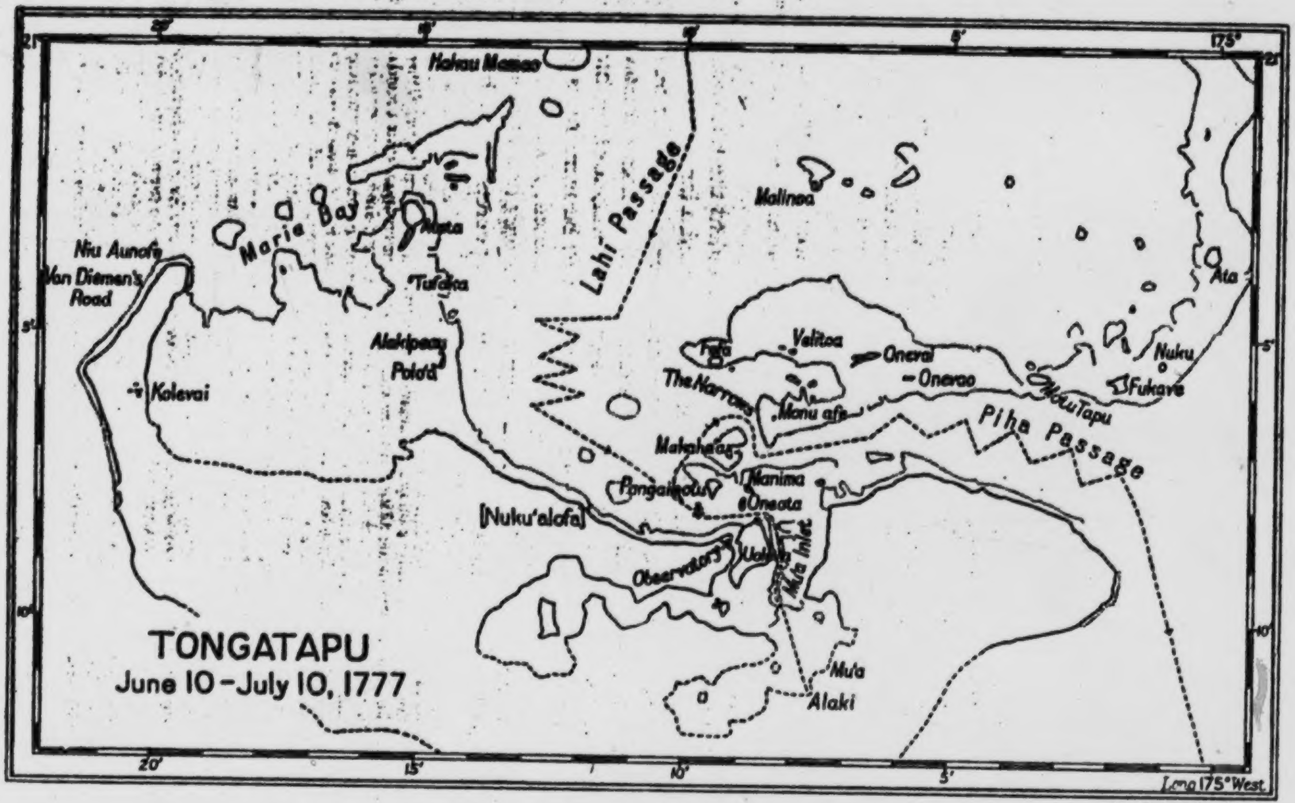
TONGATAPU
June 10 - July 10, 1777
Hakau Mamao
Maria Bay
Niu Aunofo
Van Diemen's Road
Kolevai
Tufaka
Alakipeau
Polo'a
[Nuku'alofa]
Lahi Passage
Malinoa
Fafa
Velitoa
Onevai
Onevao
The Narrows
Manu afe
Makaha'a
Pangaimotu
Manima
Oneata
Observatory
Mu'a Inlet
Mu'a
Alaki
Piha Passage
MouTapu
Fukave
Nuku
Ata
25'
15'
10'
5'
175°
21
5'
10'
20'
15'
10'
5'
Long 175° West

FIG. 6

102
103
131
361

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

[1777]

101 Anamocka. I have no doubt but Prince Williams islands, descovered
by Captain Tasman are included in this number for while we lay at
Happi one of the Natives told me that three or four days sail from
thence to the NW lay a group of small islands consisting of upwards
of forty; this correspon[d]s very well with the Situation of Prince
124 Williams isles.[1] And we have very good authority to beleive that
Keppel and *Boscawen* islands seen by Captain Wallis[2] are well known to
177 these people, for on my enquireing of Fattafee the King how they
came by the Knowledge of iron and a small iron tool I saw here last
Voyage, he told me it came from *Onnuahtabutabu*,[3] and on asking him
how the people of that island came by it, he said one of them sold a
Club for five Nails to a Ship which came to the island, and that these
five Nails after wards came to Tongatabu and were the fi[r]st they
had seen, so that the Iron they got from Captain Tasman must have
been worn out and forgot long ago.[4] I was very particular in enquiring
into the situation, size and form of this island, how long
sence the Ship was there, how long she stayed and if there was any
more than one Ship. He said there was but one and she did not anchor
but left it after her boat had been a shore, and from several
circumstance[s] which he mentioned it could not be many years
101 sence. He said there were two island[s] near each other which he
himself had been at, the one was high and peaked like Oghao and
124 was called *Cootahs*[5] but the other the Ships people landed upon called
177 *Onuahtabutabu* was much lower: that they were the same sort of
people with themselves, built the same kind of Canoes, and had Hogs
and Fowls and in general every thing Tongatabu produceth. The
Ship here refered to could be no other than the Dolphin, being the
only single ship that had touched at any island in this neighbourhood
101 for many years. But the islands they speake of as being the most considerable
are *Hammoah*, *Vaughwaugh* and *Fidgee*,[6] each larger than *Tongatabu*.
None of these islands have been seen by any European that

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[1] Tasman's Prins Willems islands were the north-eastern islands of the Fiji group. It was on 5 February 1643 that, after leaving Tonga behind him, he encountered the chain of reefs and islets south of Nggele Levu, a low coral island, one of the Ringgold Isles, some 45 miles off the main island of Vanua Levu. Cook's informants certainly had no right to claim Fiji in general as part of Tonga; but it is not likely that they did so. The Tongans were probably referring to the Lau group, the nearest island of which, Ongea, was only 220 miles away.

[131] [2] Keppel was Niuatoputapu, lat. 15°57′ S, long. 173°46′ W; Boscawen was Tafahi, four miles to the north-west. Wallis sighted them in 1767; and his men landed on Niuatoputapu.

[3] [O]Niuatoputapu.

[4] This seems to dispose finally of the theory of a Tasman origin, nourished by Forster and not entirely parted from in II, p. 266, n. 1.

[5] This must be Tafahi, unlikely as the form seems. Cook probably heard it imperfectly, as Ko Ta[fa]hi: Tongans will glide over a middle syllable. It is 2000 feet high, just over half the height of Kao. Niuatoputapu rises to only 550 feet.

[6] Samoa, Vava'u, Fiji.

we know of, except by Tasman, who in his Chart lays down a small 101
island nearly in the situation I suppose Vaughwaugh to be, that is
in about the Latitude of 19° but then this island marked on the chart
is very small whereas Vaughwaugh is said to be larger than Tonga-
tabu and with high Mountain[s].[1] I certainly should have gone to this 123
island with Feenough from Happi, had he not then told me it was an
inconsiderable island and without a harbour, but Fattafee the King
assured me afterwards that it was a large island and not only produced
every thing in common with Tongatabu, but had several streams of
fresh Water, and that there was as good a harbour as the one in Tongatabu
and added if I would go there he would accompany me, and
if I did not then find every thing true he had told me I might kill
him, I had no doubt but that he told the truth and that Feenough
from some Views or other had deceived me.

Hammoah which is also under the dominion of Tongatabu lies two 101
days sail to the North or NW of Vaughwaugh, it is described as being
the largest of all the islands, with harbours and every other necessary.[2]

Fidgee lays three days sail from ***Tongatabu*** in the direction of NWBW,
they describe it as a high but very fruitfull island abounding with
Hogs, Dogs, Fowls and all the kinds of fruit and roots that are found
on any of the others.[3] It is not subject to Tongatabu on the Contrary [721]
they frequently make War on each other and it appeared from several
circumstances that these people stand in much fear of those of Fidgee,
and no wonder sence the one is [a] Humane and peacable Nation,
whereas the other is said to be Canibals, brave, Savage and Cruel.[4]
That they are Canibals, they themselves do not deny, there were 563
several of them at Tongatabu when we were there of whom we inquired,
those I saw was a full shade darker than any of the other
islanders,[5] one of them had a large hole in his left ear and so extended

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[1] Tasman's small island was Late, lat. 18°30′, long. 174°40′ W; it is small, but rises to [131]
1700 feet, much higher than any part of Vava'u, the highest 'mountain' on which is just
over 600 feet. Vava'u, broken up by water, is not as large as Tongatapu, though it looks [133]
about the same size on a general map: Tongatapu covers just over 100 square miles, the
whole Vava'u 'district' (i.e. other small islands are added in), only 46.

[2] Samoa is north-east, not north-west, of Tonga, distant about 360 miles. The story that [175]
it was under the dominion of Tongatapu was perhaps wishful thinking: it was invaded by
the Tongans from the end of the twelfth century to about 1250, when they were driven out, [648]
with appreciation of valour on both sides. But it seems to have paid some tribute.

[3] '. . . it is somewhat surprizing that Capt Cook did not go in search of it according to His usual practice. His reasons for not doing it I can't account for; as we certainly had time while we were lying at Tongataboo.'—Gilbert.

[4] There is little record of war between Tonga and Fiji. But the prestige of Fiji was high, [177]
and adventurous young Tongan chiefs would treat Fiji as a sort of war college, and go across
to take part in the tribal fighting there. They also learnt a good deal about canoe-building
from the Fijians. The Fijian characteristics noted are all valid enough.

[5] They were not Polynesians, though Fiji was just outside the 'Polynesian triangle'. The [44]
'full shade darker' indicates the Melanesian strain. Inter-traffic between Fiji and Tonga
led to a certain mixture of blood, not confined to chiefly lines.

duct you through between Maccaha and Monooaffee[1] or the 4th and 133
5th isles which you will preceive to lay off the West point of the
Lagoon, or you may go between the 3rd and 4th that is between 504
Pangymaudoo and Manooaffee,[2] but this channel is much Narrower
than the other. There runs a very strong tide in both, the flood as I
have before observed, comes in from the NW and the Ebb, retur[n]s
the same way, but I shall speak of the Tides in a nother place. As
soon as you are through either of these Channels haul in for the shore
of Tongatabu and Anchor up in the bieght between it and Pangy-
maudoo, before a Creek leading into the lagoon, into which boats can
go at half flood.[3]

Altho *Tongatabu* has the best harbour *Anamocka* furnishes the best 312
Water, though it cannot be called good, however by diging holes near
the side of the Pond one gets what may be called tolerable. This
island too is the best situated for drawing refreshments from all the
other as being nearly in the centre. Besides the road in which we 133
anchored and the harbour within the SW point, there is a creek in
the reef before the Eastern Sandy Cove on the North side of the
island, in which two or th[r]ee Ships might lay very secure by moor-
ing head and Stern with their anchors or Moorings fast to the
rocks.

Happi is a group of islands extending SWBS and NEBN about 19 101
Miles and are connected to each other by a reef of coral rock. The
North end lies in the Latitude of 19°39′ S and 33′ of Longitude to the 131
East of Anamock[a], between them are a great many small islands
sand banks and breakers, so that the safest way to come at Happi is
either by the rout I took or round by the North, according to the
situation of the Ship bound thither. *Lefooga* off which we Anchored is
the most fertile isle of them all and of course the best inhabited.
There is anchorage along the NW side of this island, but it will be 133
necessary to examine the ground well before you moor, for altho the
lead may bring up fine sand there are nevertheless some sharp coral
rocks that would soon distroy the Cables.

Those who want a more particular description of these islands 128
must have recourse to the annexed Chart,[A] in which every thing is
deleneated with as much accuracy as circumstances would admit.
Recourse must also be had to the same Chart for the better finding
out the several stations of the Ships and their rout from the one to

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[1] Makaha'a and Monu afe.

[2] It should be Pangaimotu and Makaha'a. Cook's names, repeated from the passage on p. 155 above, suggest that he had got Makaha'a and Monu afe mixed in his mind, though his chart was correct.

[3] Here he means the passage between Holeva (his 'Observatory Point') and Nukunuku.

A [See category 102, p. 104--Analyst]

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

[1777]

782 they do not worship any thing that is the work of their own hands, nor any visible part of the creation. They do not make offerings of Hogs, Dogs and Fruit as at Otaheite, unless it be emblematical as their Morais are perfectly free from every thing of the kind; but that they offer real human sacrifices is with me not a doubt. 346 Their Morias or Afiatoucas, for they are called by both names, but mostly by the 764 latter, are as at Otaheite and many other parts of the world, a burying ground and a place of worship, though there are some that seemed to be only appropriated to the first, but these are small and in every other respect inferior to the others.

764 As we never saw a funeral, I can give no account of the ceremony used on that occasion. We only know that the dead are buried in these Morias, probably in something like vaults, or as Omai called them (who was with me when I made the enquiry) stone coffens.[1]

Latitude and Longitude

128 I shall conclude my observations on these islands and people with giving some account of the Astronomical and Nautical observations that were made during our stay among them. And first I must observe that the difference of Longitude between Anamocka and Tongatabu, is less by   than in the Chart and Narrative of my last voyage; an error that might easily arrise, as the longitude of each was found without any conection with the other, but now the distance between them is determined to a degree of precision that will not admit of the least error; and which the following table will illustrate.

	°	′	″
131 The Latitude of the observatory at Tongatabu by the mean of several observations			

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[776] 'atua (numerous ones—district gods, lineage gods and family gods) dwelt in a region in the west called Pulotu, to which the souls of chiefs and *matapule* made their way; but commoners came, as it were, to a dead end. 'They have a very Gentlemanlike notion of a [771] future State, they firmly believe that Woweatooa never troubles himself about any one but the Eggees or *Gentlemen* but when they are dead they rot & return to earth & there is an [771] end of them.'—*Bayly*, 17 May. King, 5 July, has something to add. 'My friend Fattafai' he did me the honour to appear much affect'd during the time I was packing up the [773] observatory, he with earnestness prest me to stay, & told me that he woud build a large house on the point w[h]ere our observatories stood, & that I shoud observe the heavens in [775] peace. It shoud be observ'd, that when these people gave any opinion as to the use of the clocks & other instruments & the reason of our observing, they always supposed the Clock [777] to be an Eatōōa (God) & that we were performing religious ceremonies to the Sun Moon &[c]; many of these notions of theirs were rather countenanc'd, as it was surely better to leave them with ideas of our having some religion than none at all & it is too true, that no other part of our conduct or way of spending our time, coud furnish them with the smallest reason to suppose we had any Religion, indeed many of them woud ask who & what was our God, which we endeavourd to answer by saying he was theirs as well as our God, & corresponded with an opinion of their own of one Omnipotent being: the little we were able to learn concerning their religious tenets shall be referred to another place.'

[1] The interpretation of 'stone coffins' as vaults is of course correct; but Cook might have omitted his 'something like'. They were indubitable vaults.

131

The Longitude, by the mean of 131 sets of lunar observations, amounting to near a thousand observed distances between the ☽ and ⊙ and ✱s	184	55	18	E
The difference of Longitude made by the T. keeper between the above observatory and that at Anamocka	0	16	00	
Hence the Longitude of Anamocka is	185	11	18	
By the T. Keeper: Greenwich rate	186	12	27	
By the T. Keeper: N. Zealand rate	184	37	00	
Latitude	21			

N.B. The observatory at Tongatabu was near the middle of the north side of the island, and that at Anamocka, on the west side, but the Chart will elucidate this.

The Timekeeper was too Slow for mean time at Greenwich on the 1st of July at Noon, by $12^{h}34'33'',2$—and her daily rate at that time was lossing on mean time $1',783$ p^{r} day; this rate will now be used in finding the longitude by the Timekeeper and 184°55′18″ or $12^{h}19'41'',2$ will be taken as the true longitude from Greenwich.

Dip By the mean of several observations, the South end of the diping Needle was found to dip

at Lafooga, one of the Happi isles	36°55′	Lat. 19°	Long. 185°
at Tongatabu	39 01½	.. ..	184°55′18″

The Variation of the Compass was found to be	°	′	″	
at Anamocka, on board	8	30	03½	E
at Anchor off Ogodoo, 18 miles South of Anamocka[1]	8	12	29½	E
at Anchor off Lefooga	10	11	40	E
at Tongatabu on board	9	44	05½	E
at D^{o} on shore	10	12	58	E

I can assign no reason why the Variation is so much less at, and near Anamocka, than at either of the other two places, I can only say that there is no fault in the observations and that the variation, either is, or ought to be more at Anamock[a] than the above as it has been found to be so to the Northward, Southw^{d} Eastward and Westward of it. But desagreements in the Variation greater than this, even in

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[1] Douglas has the note, 'a mistake, for it is certain that Ogodoo or Kotoo is to y^{e} North of Annamocka': a just observation.

131 the same needle is no new thing, and I should not have taken notice of it, but from a belief that the cause, whatever it is, is in the place and not in the needles, as Mr Bailey found the same or rather more difference.

133 *Tides* The Tides are more considerable at these islands than any other I have met with in this sea that lie within the Tropicks. At Anamocka it is high-water on the full and change days nearly at 6 oclock, and the tide rises and falls upon a perpendicular about six feet. In the harbour of Tongatabu, it is high-water on the full and change days at fifty minutes past six, and the tide rises and falls [4 foot 9 Inches] and [3 foot 6 Inches] at the quadratures. In the Channels, between the islands which lie in this harbour, it flows near tide and half tide; that is the flood continues to run up near three hours after it is high-water by the Shore, and the ebb continues to run down three hours after it is flood by the shore. It is only in these channels and a few other places near the shores, that the motion of the Water or Tide is perceivable so that I can only guess at the quarter from which the flood comes. In the road of Anamocka it sets WSW and the Ebb the contrary; but it falls into the harbour of Tongatabu from the NW, passes through the two narrow channels on each side of [Hoolaiva][1] where it runs with considerable rapidity, and then spends it self in the Lagoon; the Ebb returns the same way and runs with rather greater force. This NW Tide is met at the entrance of the Lagoon by one from the East, but this, as I have before observed was found to be very inconsiderable.

OOD

Thurs. 17 At 8 o'clock in the evening of the 17th the body of Eaoowe bore NEBN distant 3 or 4 leagues. The Wind was at East and blew a fresh gale, with it I stood to the South till half an hour past Six oclock
Frid. 18 the next Morning when a sudden squal from the same direction took the Ship aback, and before the sails could be trimed on the other tack the Main sail and the two topgallant sails were much
Sat. 19 torn. The Wind kept between the SW and SE the 19th and 20th after-
Sun. 20 wards it veered to East, NE and North. The night between the 20th
Mon. 21 and 21st an Eclipse of the Moon was observed as follows, being then in the Latitude of 22°56′ S.

		h	′	″	
Beginning by	Mr King at ..	0	32	50	Appt time AM mean Longit. 186°57½′
	Mr Bligh ..		33	25	
	Self		33	35	

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[1] i.e. Nukunuku.

000 the evening to N in mod^{t} breezes. The weather close[a] and cloudy with
some heavy showers about noon but at night pretty clear. A moderate
sea. Steer'd WSW & SWbW. Saw some Tropic Birds and fishes.

114 SUNDAY 27. *Lat.* DR 20.32 S. *Long.* DR 185.36 E. *Therm.* 75½:75¾:
76¼:76¼:76:75¼. The wind SE and SSE till near noon & afterwards
132 about E. Moderate breezes and gentler in the afternoon, but the
[131] evening increas'd again a little. The weather fine with a smooth sea.
Steerd WSW till noon and then W½N, but at seven in the evening the
114 Discovery bore down and hal'd us as they thought they saw Land
bearing WbN, when we haul'd our wind to the S^{o}ward. At half
past ten we tack'd and stood to the N^{o}ward. Cleand and smoak'd
below.

132 MONDAY 28. *Long.* TK 185.27½ E? *Therm.* 77½:79¾:79½:78:76½:77¼.
[131] The wind NbW and N. Moderate breezes and at night rather gentler.
The weather fine in the forenoon but afterwards duller, and in the
evening a great deal of Thunder and lightning chiefly to the SW which
114 was follow'd by some rain. A smooth sea. At three in the morning
we stood to the westward close haul'd, and though we expected to see
the Land at daylight it was not discoverd before nine o clock, when
the Discovery made the Signal & we soon after saw it from the mast
114 head. It soon appear'd from the deck as three small islands almost a
133 head[1] and at noon we were within about five miles of the southermost,
which as well as the others seem'd to be two miles in length and
somewhat higher than Te rouggemou A'tooa but lower than Wateeoo
[137] and Savage island. We could plainly see they were coverd with trees,
amongst which were some Cocoa nuts, and they had white sandy
beaches but the sea broke to some distance off each end of that we
were nearest. At the same time we could sea [*sic*] several more islands
just appearing, some to windward some a-head & three or four on the
lee bow.[2] They appeard much like the others when we got nearer, but
some rather higher & one right a head made in two hummocks but
about four in the afternoon in three, at which time the Island
Annamocka[3] was plainly seen beyond it which seemd to be three

[a] The heat has been less severe for two days past which may be probably owing to the frequent rains we have had. Whether it may be the variable and rainy season hereabouts I cannot determine, but if so it proves these are not consequences of extensive lands, for the islands in this sea are mere points and can have little effect in producing changes of wind or weather.

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[1] These were the three most southern islands of the 'Otu Tolu group, called (from south to north) Telekitonga, Telekiha'apai, and Telekivava'u. *Teleki* means 'on the way to'.

[2] These were the islands of the Nomuka group: the main ones to windward and ahead were Mango, Nomuka Iki and Nomuka; to leeward were Kelefesia and Tonumea.

[3] Nomuka.

[pp. 721-859 not processed]

648 inflicted I believe will scarcely be found consonant with the principles of justice or humanity upon the strictest scrutiny.

114 [132] [439] SATURDAY MAY 10th. The wind from E to NNE. Fresh breezes with cloudy weather and a considerable swell so that no Indians came off today, but they continued to trade on shore and amongst other things we bought a hawks bill turtle of about 30 Lb weight.

[132] SUNDAY 11th. The wind SSE. Fresh gales with cloudy weather before noon and some rain, thunder and lightning in the morning but afterwards clearer and more moderate. No Canoes came off the weather was so bad. In the forenoon we got off the horses and in the evening the other things with the party of Marines, three of whom were punish'd on shore for negligence. On heaving in the best Bower the service was found broke and the Cable a little damag'd.

[132] [439] MONDAY 12th. The wind SSE. Fresh breezes with pretty clear weather. We should have left the Island but waited for the Discovery who has attempted to recover her anchor yesterday and today, but in vain as it got hold of a rock and the weather has been bad. Few Indians came off as they seem to have exhausted the greatest part of their stock for trade.

[132] [533] [535] TUESDAY 13th. The wind from SE to E. Moderate breezes in the forenoon and afterwards almost calm. The weather fine. The Discovery after a good deal of trouble recover'd her anchor. Few of the natives came off but at night we could hear them engagd in singing and dancing on shore as if a great number had been collected together.

[132] 648 131 133 WEDNESDAY 14th. The wind SSE and S. Gentle breezes with very fine weather. Between seven and eight in the morning we weigh'd and left Anamocka or as the natives pronounce it Anna'mooka. This island (as well as Amsterdam & several of the adjacent ones) was discover'd by Abel Tasman in 1643, who considering the time he staid has given a tolerable account of it. Its situation is in 20.14 S Latitude, 185.30 E Longitude, and is about four leagues or more in circuit being nearly of a   figure. It is somewhat higher than the other small isles that surround it but may nevertheless be rank'd amongst the low islands.[a] The shore at that part where we lay

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[a] As the different heights of land may easily be misunderstood from the deficiency of terms we use in expressing their various degrees I shall endeavour to explain what I mean by low & other lands. By low land I mean that which is about the height of the English coast about Essex, or what is a general criterion, that on which the trees where there are any appear above water as you approach it before the body of the land is so apparent as to determine its extent. When I say land is of a moderate height I mean that it is as high as the English coast about the Downs of Kent & Sussex, or indeed of the whole southern coast as far as Plymouth. I know no part of the English coast to the E or S^{o}ward to which I

133 whole might supply the imagination with an idea of some fairy land
[133] realiz'd. It would appear that some of these places may be form'd after
the manner we have suppos'd of Palmerstons Island, as there is one
which as yet is entirely sand and another that has only one bush or
tree. Indeed the appearance of Annamooka in general argues also
such a mode of formation, did not its height perswade us that the sea
has either made a very sudden recess or that it has begun to do so at a
period so remote as scarcely to coincide with the date of the Creation.

114 At five in the evening we had reach'd Kotoo the most N^o^westerly
of the low islands, a little beyond which is a shoal or reef on which the
133 sea breaks all around. On passing it we were about two leagues from
Toofóá, the smoke of which we had seen several times in the day
131 though it had now almost ceas'd. This island is about ten leagues NNW
162 from Anna'mooka and though according to the natives but thinly
312 inhabited has good water. They call the Volcano upon it Kolloo'feea[1]
and say it is an O'tooa or divinity, about which they seem to have
133 some superstitious notions. They say it sometimes throws up very
823 large stones and compare the Crater to the size of a small islet, which
103 has never ceas'd smoaking in their memory nor have they any
tradition that it ever did. We now hauld our wind and stood ESE
776 towards the islands already mention'd which form here almost a
semicircle. At six were about two miles from the shore of one of the
114 largest calld Ma'toogoo,[2] when we sounded and had ground with 55
fathom a fine black sandy bottom, and soon after nearly the same
water with a coarser white sand. We then tack'd and stood back
having for half an hour between 50 and 60 fathom, when we brought
to with the main-topsail to the mast for some time & afterwards stood
[136] on to the westward. A great many Egg birds and flying fish were seen
in the passage to day, and it was observ'd that after sailing in the
morning a tide or current from the westward set us much over
towards the islands on the right.

132 THURSDAY 15th. *Therm.* 72½:73:74½:77:75:74½. Light airs of wind
from the S^o^ward and frequently quite calm with very fine weather.
114 The sea perfectly smooth. Between twelve and one in the morning we
tack'd and stood eastward keeping close haul'd to pass to the South-
[133] ward of Fotoohàà which is the Island next Káò. At day light were
not far from the last place, which is a vast rock of a conic figure with
[103] marks on its sides as if made by torrents rushing down. After passing

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[1] The name of the volcano is Lofia. *Ko* is the nominative article. Lofia seems also to have been the name of the *'otua* or god who dwelt within the crater, throwing up fire and smoke and stones.

[2] Matuku.

Fotoo'háá[1] we steered NE and sometimes more northerly but made little
progress, so that it was about five in the evening till we reach'd two 114
shoals[a] that lye to the eastward of Nee'neeva,[2] the next island to 103
Fotoo'háá and scarcely more than two leagues from it. We then
tack'd and stood again to the westward when we had soundings with
fifty three and forty seven fathom in a coral sandy bottom, though
not long before we had no ground with seventy fathom about four
leagues east from Káò.

We saw several more Islands to the eastward today and some land 114
whose extent could not be well determin'd, which we suppos'd to be
the Island we were directed to by Feenou. Several Canoes came from [439]
the different islands near us to barter their fruit, and Fee'nou who
had been at one of them all night came accompanied by two more [634]
large Canoes and brought two hogs, some plantanes and Cocoa nuts [431]
as a present to the Captain but return'd in the evening. In the night
we could plainly see flames issuing from Toofôá though to no great [133]
height, and in the day though it smoak'd considerably at other times it
almost ceas'd.

FRIDAY 16th. *Lat.* DR 19.42 S. *Therm.* 73¾:75:78¼:78:75:74. The 132
wind varying between SSE and SE. Gentle breezes with fine serene
weather and temperate. The sea quite smooth. In the night we made 114
short boards just to keep our station but at day light stood E close
hauld, when we saw the land discoverd from the mast head yesterday 133
afternoon, bearing EbS, and could judge it to be low from the trees
only appearing above the water. About nine we could see it plainly,
forming three Islands nearly of an equal size, and soon after a fourth
to the southward of these as large as the others. Each seem'd to be
about six or seven miles long, and of the same height and appearance,
lying in a bending direction from North to south. The northermost 131
of these is call'd Há'ano,[3] the next Fóá,[4] the third Lai'fooga[5] and the 103
southermost Hoo'laiva,[6] but are all included in the general name
Ha'paee by the natives. There is likewise a small isle to the Etward
of Hoo'laiva call'd Ta'taffa,[7] one lying to the westward of Ha'ano
call'd Loo'hoggo,[8] and another between Ha'ano and Fóá but farther
on to the eastward call'd Noogoo'nammo.[9] About ten o clock we
pass'd to the southward of two other islands, the first calld Mang'onne[10]

[a] in passing between these shoals and Fotoo'háá we sounded but had no ground with seventy fathom.

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[1] Fotuha'a.
[2] Niniva.
[3] Ha'ano.
[4] Foa.
[5] Lifuka.
[6] Uoleva.
[7] Tatafa.
[8] Luahoko.
[9] Nukunamu.
[10] Mo'unga'one.

131 the second Offo'lange,[1] between which is a rock nam'd Bouhee,[2] and
103 at eleven had got up to Loo'hoggo. We then tack'd and stood to the
S^o^ward but in the afternoon to the eastward, and at seven in the
evening were within a league of the shore of Ha'ano, but stood off
again as we had no soundings with less than 56 fathom. Before dark
some more land was supposd to be seen to the NE^t^ward, which was
probably an Island mention'd to us by the natives who call it
Va'vaoo[3] and say it is much larger than Ha'paee.

634 A good many Canoes came from the different isles who brought a
609 few hogs, fowls and fruit, and Fee'nou follow'd us again to day with a
431 present of two more hogs, some Cocoa nuts &c but in the afternoon
went forward to Hapaee.

132 SATURDAY 17th. The wind ESE. Moderate breezes with fine weather
though sometimes a little cloudy. A smooth sea. Lat^d^ at noon 19.46.08
114 p. ob. In the night we stood off and on and in the morning were close
in with Foa, which we saw was join'd to Ha'ano by a reef running
133 even with the surface of the sea from one to the other. In the mean
time the Master was sent in the cutter to sound between several
small shoals that lye a little way off shore, and before eight she made
the signal for having found anchorage, upon which we stood on and
soon after came to abreast of the reef which joins Lai'fooga to Fóà (in
the same manner as the last place is joind to Ha'ano) though rather
over towards the N end of Lai'fooga in twenty four fathom about a
mile from the shore. The bottom was a fine sand and when moor'd
one extreme of Hapaee bore the other the S end of
Fóà the north end of Lai'fooga and the island
609 Loo'hoggo off Ha'ano.[4] Immediately after anchoring many Canoes
434 came off and in a short time there was above a hundred about the
two ships with those that were constantly going to and coming from
the shore. They brought off fruits and several hogs which they
barterd in the same manner as the people at Annamooka, and indeed
we found that many of them had been at that place while we lay there.

114 The Captain went on shore at the N part of Lai'fooga a little to the
right of where the ship lay and found the landing place very convenient except at low water, when the Boats cannot get close in for a
634 flat that runs some way off and is dry at that time. We found that the
people here paid rather still more respect to Feenou than at Annamooka, and no person seem'd to have equal authority to him as they
seem'd to do what ever he directed with the greatest readiness.

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[1] Ofolanga, the northernmost of the Ha'apai group.

[2] Puhi: it is inside the Ofolanga reef.

[3] Vava'u.

[4] Cook is more precise about the position, p. 105 above.

suppose we would never think of applying to on such occasions. It is 609
therefore the best method if a single person or two should wish at any 674
time to traverse the country to apply to the chief, who will send a
guide which will be a perfect security against all insults, for if a 648
larger company chuses to undertake such peregrinations they are seldom molested. At the same time it should be observ'd that it is every persons business to avoid giving them an oppurtunity of offering such insults, as it not only interrupts the good understanding which ought always to be cultivated with these people, both from a principle of humanity and as a means of obtaining with ease those supplys of refreshment which are always wanted by ships that visit them, but as it also exposes themselves to real danger: For though we cannot accuse any of the natives, however bad, of an intention to destroy or even hurt the person thus insulted, yet in the scuffle which must always happen before they can secure the cloaths which is their object a man may accidentally receive an irrecoverable blow.

THURSDAY 17th. The wind E. Gentle breezes and sometimes calm 132
with close sultry weather and a good deal of rain. The Captn went on
shore in the morning carrying the Indian with him whom he 114
releas'd, and in the forenoon we weigh'd and steerd SWbS to get an
offing but afterwards hauld up SSE close to the wind.

Middleburg or as the natives call it E'ooa is only leagues from 131
Tonga, and English road in Latitude Longitude
E. The shore is every where bold, for the reef of reddish
rock, almost like that at Wateeoo, which lines it in some places is 133
scarcely a hundred yards broad. The island is of
figure, about leagues in circuit, and as far as we know
has no anchoring place but in English road. That as being an open 132
road cannot be calld a place of safety, for though it lyes on the [west]
side of the island experience has not yet convincd us that the winds from that quarter never blow with a strength sufficient to force a ship from her anchors, and the short time we lay there inform'd us that even when not blowing directly upon the shore a swell may be raisd which is both troublesome and may at times cut off all communication with the shore, as few Canoes came off to us at that time.
Vegetables and hogs may be had in sufficient quantity, but water for 439
the purposes of a ship is just as difficult to procure as at Tonga, and
in other respects though a beutifull spot we found it much less con- 312
venient than that place. The anchoring ground too is not of the best
sort as we found the Cable much rubb'd on heaving it up this morn- 133
ing. The people seem not to be in that excellent subordination we 565

Rank in Tonga[1]

Adrienne L. Kaeppler
Bernice P. Bishop Museum

The Tongan archipelago lies in the South Pacific approximately between 131
18° and 23° south latitude and 173° and 176° west longitude, southeast of
Fiji and southwest of Samoa. The 269 square miles are divided among some
150 islands, many of which are uninhabited. The population in 1967 was more 161
than 78,000. Tongans are Polynesians, but there is a definite admixture with
Fijians, with whom, both traditionally and at the present time, there is 144
much social intercourse. Many Tongan genealogies include one or more [829]
Fijians, and these people are more highly admired than Samoans, who
are closer to Tongans in both physical type and culture. A well known [643]
example is the late Queen Sālote's half-brother, who is the son of her father,
Tupou II, and a high-ranking Fijian woman.

Tongans have their own language, derived from a proto-language which 197
seems to have been one of the first groups to appear in the differentiation
of the Polynesian language family. The Tongan language has its closest
similarities with Uvean and Niuean, and somewhat lesser ones with Samoan
and Fijian (Green 1966: 13). Highly developed in Tongan is a 576
language of respect, in which words reflect societal ranking. Thus for the 195
same meanings, when speaking to the king one uses different words from 565
those used when speaking to chiefs, and still other words are used in speaking
to commoners. Thus "go" is *hā'ele* when referring to the King, *me'a*
to chiefs, *'alu* to commoners, and *lele,* the ordinary word for "run," is used
when speaking of oneself to persons of higher rank. Integrally related to [537]
the language of respect is speechmaking. Ceremonial attendants (*matāpule*)
are the traditional speechmakers and are of necessity well versed in the
language of respect.

The most pervasive concept in Tongan culture is that of hierarchical 554
ranking. All interpersonal relationships in the island kingdom are governed 181
by principles of rank, and material culture and language reflect
this ranking.[2] The purpose of this essay is to delineate how categories of 121
people are ranked, the principles on which rank and status are based, and
the relationships between the various kinds of ranking. The focus is ethnographic,
and an attempt will be made to describe organizing principles
important to the Tongans in ordering their social relationships.

In order to understand rank within Tongan society, one must 554
conceptually distinguish social status, governing relationships within a [121]
small kin group, from societal ranking, governing relationships within the
society as a whole. Social status, which is based upon traceable consanguineal [612]

CHAPTER II

ENVIRONMENTAL AND SOCIAL CONTEXT OF TONGAN DANCE

GEOLOGY AND GEOGRAPHY

131 The Tongan archipelago, last of the Polynesian Kingdoms, lies in the South Pacific approximately between 18° and 23° south latitude and 173° and 176° west longitude, southeast of Fiji and southwest of Samoa (see map, Figure 2.1). Tonga's 269 square miles are divided among some 150 islands, many of which are uninhabited.

133 Tonga is little known to the Western world except for the geological fame of several of its volcanic islands on the Westerly long axis of the group which are part of a volcanic chain running from New Zealand to Samoa through the Kermandec Islands. Volcanic activity still occurs both above and below the surface of the sea. About midway along this line of islands lie Kao and Tofua. Kao, an extinct crater reaching a height of 3,380 feet, is one of the few examples in the world of a perfect volcanic cone. Tofua, which is flatter and still occasionally erupts, is well known because it was off the coast of Tofua that the mutiny on the Bounty took place. Fonuafo'ou (Falcon Island) is well known because, due to volcanic activity and erosion, it alternates being above and below the surface of the sea.

781 [829] To the Tongans the most important volcanic island is Niuafo'ou. The disastrous eruption in 1946 is still vivid in their minds as it necessitated the evacuation of the people to Tongatapu and 'Eua. 197 Niuafo'ouans are recognized as being 'different' because of their

[TEXT CONTINUED ON PAGE 14]

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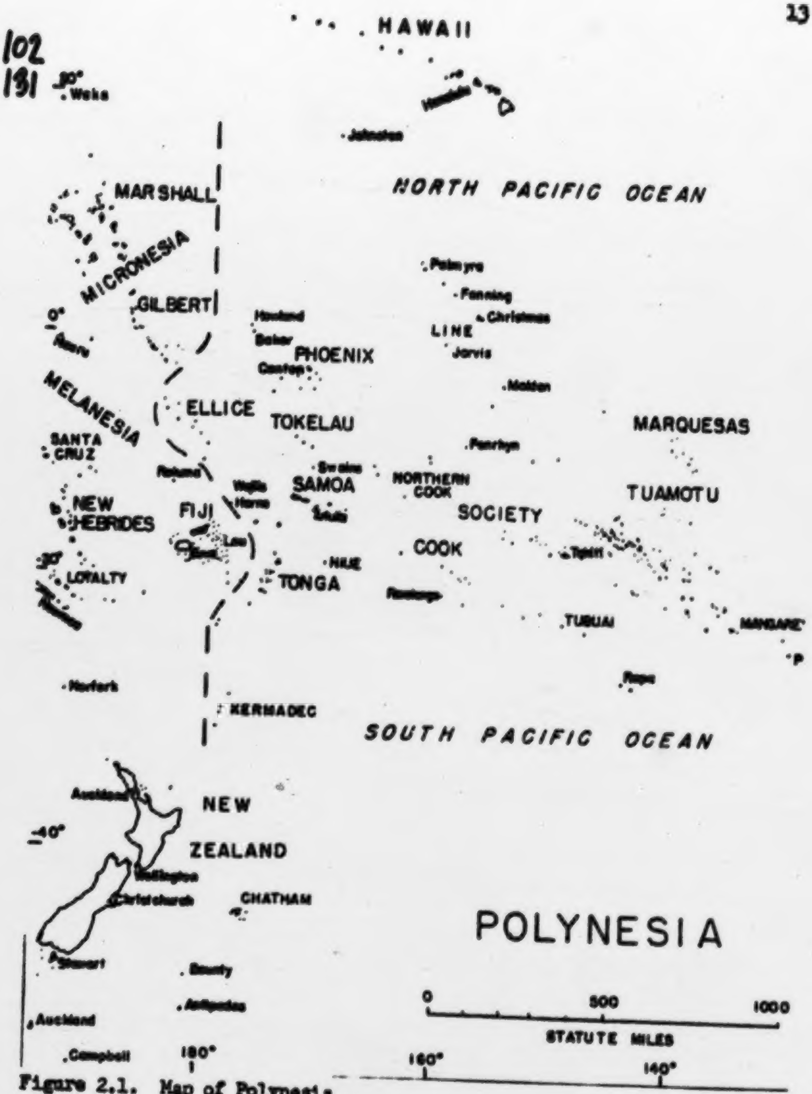
HAWAII
30°
Wake
Hawaiian
Johnston
NORTH PACIFIC OCEAN
MARSHALL
MICRONESIA
Palmyra
Fanning
GILBERT
0°
Christmas
Howland
Baker
LINE
Jarvis
PHOENIX
Canton
Nauru
Malden
MELANESIA
ELLICE
TOKELAU
MARQUESAS
SANTA CRUZ
Penrhyn
Rotuma
Swains
NORTHERN COOK
SAMOA
TUAMOTU
Wallis
Horne
NEW HEBRIDES
FIJI
SOCIETY
Lau
COOK
30°
NIUE
Tahiti
LOYALTY
TONGA
Rarotonga
TUBUAI
MANGAREVA
P
Norfolk
Rapa
KERMADEC
SOUTH PACIFIC OCEAN
Auckland
NEW
ZEALAND
40°
Wellington
Christchurch
CHATHAM
POLYNESIA
Stewart
Bounty
0
500
1000
Antipodes
STATUTE MILES
Auckland
Campbell
180°
160°
140°

Figure 2.1. Map of Polynesia
Drawn by Edwin H. Bryan, Jr.

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131
103

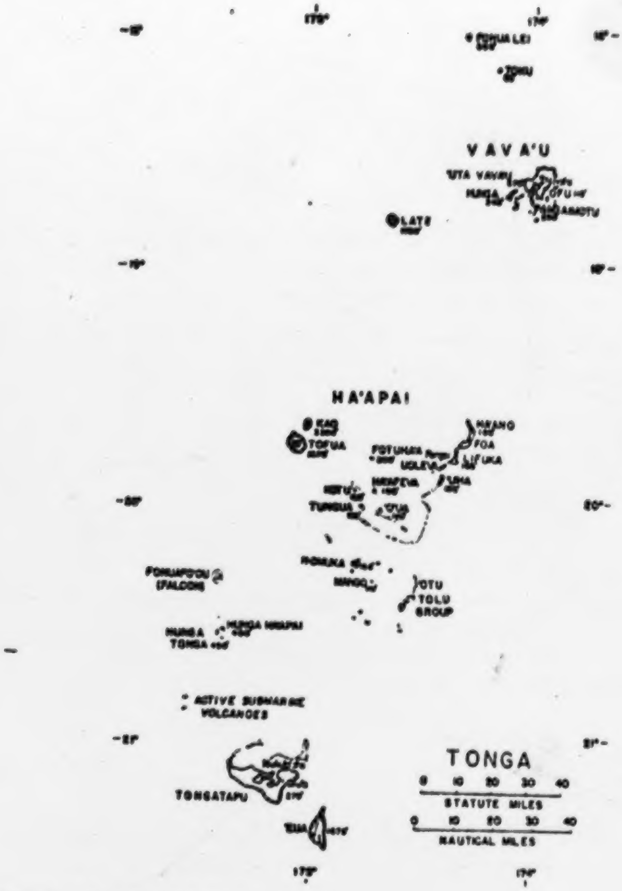
VAVA'U
'UTA VAVA'U
HUNGA
OFU
LATE
TOKU
HA'APAI
KAO
TOFUA
FOTUHA'A
UOLEVA
FOA
LIFUKA
HA'ANO
UIHA
TUNGUA
NOMUKA
MANGO
FONUAFO'OU
(FALCON)
OTU
TOLU
GROUP
HUNGA HA'APAI
HUNGA
TONGA
ACTIVE SUBMARINE
VOLCANOES
TONGATAPU
'EUA
TONGA
0
10
20
30
40
STATUTE MILES
0
10
20
30
40
NAUTICAL MILES
175°
174°
20°
21°

Figure 2.2. Map of Tonga
Drawn by Edwin H. Bryan, Jr.

262 pineapple and papaya are eaten in season, and kava is widely grown.
[241] [231] Pigs and chickens thrive and, along with fish and tinned corned beef,
form the main protein in the Tongan diet.

131 Geographically and administratively the Tongan islands can be
divided into three main groups (see map, Figure 2.2). Tongatapu and
[133] 'Eua in the south have by far the largest land area. The central
Ha'apai group consists of small coral limestone islands. Lifuka,
largest of the Ha'apai group, is 4 1/4 miles long and 1 1/2 miles at
its broadest place. The Vava'u group lies 60 miles northeast of
[504] Ha'apai and consists of one large and several small islands. Neiafu
harbor, Vava'u, is one of the best land-locked harbors in the South
Pacific. In addition to these three main groups there are outlying
islands to the north, including Niuafo'ou, Niuatoputapu, Tafahi, Toku,
and Fonualei.

132 The temperature varies from the low 50°s to 90°, the humidity is
usually very high, the mean being almost 80°. Annual rainfall is
about 65 inches per year. There is usually a definite wet season from
December to April and often a draught between October and December.
[312] Until recently all fresh water was rainwater. Tonga is subject to
[731] hurricanes and not infrequently thousands of coconut and banana trees,
the basis of their cash economy, are ruined.

PEOPLE AND LANGUAGE

161 This is the geographical setting in which nearly 70,000 people play their daily social roles. The figures of the last Tongan census,

63: Urbanowicz E-4,5 (1970,1971) 1974
OU9 Tonga OU9

TONGAN ADOPTION BEFORE THE CONSTITUTION OF 1875

by

Charles F. Urbanowicz
California State University, Chico

ABSTRACT

This paper is an ethnographic reconstruction of aboriginal adoption 121
transactions. It is based on recent (1970 and 1971) field work in the Polynesian archipelago combined with archival research on extant nineteenth century documentation. The paper deals with adoption transactions prior to 1875 since aboriginal adoption, as well as numerous other aspects of aboriginal culture, were radically altered as a result of European influence. The Tongan Constitution of 1875 is a landmark for any discussion pertaining to Tonga, for at that time various alterations were rigidly introduced into Tongan culture.

Introduction

The Polynesian Kingdom of Tonga is currently a Constitutional 101
Monarchy under His Majesty King Taufa'ahau Tupou IV. The territorial 131
boundaries of the island kingdom were proclaimed by King George Tupou I (a great-great-great grandfather of the present King) to be 15°S and 23°S and 173°W and 177°W (Anonymous 1887). The islands of Tonga thus fall within a rectangle of the South Pacific some 596 miles north-south by 264 miles east-west.

In approximately 1800, Goldman's most useful "terminal date" for 175
aboriginal Polynesia in general (1970: xxviii), a numerical "guesstimate" of 161
the Tongan population would probably fall within the range of fifteen to
twenty thousand individuals. The most frequently cited figure for early 175
nineteenth century Tonga is that of 18,500 recorded by the American 161
Commodore Wilkes in the year 1840, from data provided by the local 114
Wesleyan missionaries (Rabone 1845:III:29). However, as McArthur has accurately pointed out, this figure is grossly at odds with a Wesleyan guesstimate of 50,000 Tongans for the year 1847 (1967:74; *vide* Lawry

64: Urbanowicz E-4,5 (1970,1971) 1976 OU9 Tonga OU9

DRINKING IN THE POLYNESIAN KINGDOM OF TONGA

by

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ABSTRACT

The paper provides information on the drinking of kava (*Piper methysticum*) in the Polynesian Kingdom of Tonga. The importance of drinking in traditional and contemporary Tongan society is discussed as well as changes which have taken place over time.

Introduction

The Kingdom of Tonga is located approximately 550 miles southwest 131
of the islands of Samoa and approximately 450 miles southeast of the islands of Fiji. The islands have a total land mass of some 269 square miles and the largest and principal island of the group is Tongatapu Island (100 square miles). Recent Carbon 14 analysis indicates that Tongatapu was the first of 172
the Polynesian Islands to be settled, with a Carbon 14 date indicating occupation from at least 1140 B.C. (Groube 1971:303). The estimated 162
population of the Kingdom in December of 1973 was 92,587. The last and most thorough census of 1966 indicated that 98.31 per cent of the 77,429 inhabitants were Tongans. Tongans are strong Christians and in 1966 only 61 171
individuals did not list any religious affiliation (Fiefia 1968:23).

The islands were formerly a protectorate of Great Britain but on 642
4 June 1970 they became fully independent and entered the British Commonwealth. Tongans have a Constitutional Monarchy (dating from the Constitution of 1875) combined with a Parliament. The current monarch of 643
Tonga, who acceded to the throne in 1967 after the death of his mother (Her Majesty Queen Salote Tupou III), is His Majesty King Taufa'ahau Tupou IV, K.C.M.G., G.C.V.O., K.B.E., C.B.E., B.A., L.L.B., and Honorary Doctor, University of the South Pacific [Knight Commander of (of the Order of) Saint Michael and Saint George; Knight Grand Cross of the (Royal) Victorian

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114 in numerous respects, are not superior to reputable eye-witness descriptions of aboriginal Tonga.[1]

CONTACT AND DESCRIPTIONS

175 Part of the Tongan archipelago was first contacted by the Dutch naviga-
177 tors Schouten and Le Maire in 1616, and various contacts with Europeans
followed: 1643 (Tasman), 1767 (Wallis), 1773, 1774, and 1777 (Cook),
1781 (Maurelle), 1787 (La Perouse), 1789 (Bligh), 1793 (D'Entrecasteaux
and Labillardière), and 1793 (Malaspina) (see Colson 1885; Tudor 1968:
125–127). These contacts between Europeans and Tongans lasted for
periods of a few days to several weeks. The accounts of these men made
Europeans aware of Tonga and placed Tonga on Europe's map. The
accounts spurred Europeans to send men to proselytize the peoples of the
175 Pacific. Tonga, along with Tahiti, was one of the first island groups to be
177 sent European missionaries in the late eighteenth century.

797 The first missionaries were of the Missionary Society of London (form-

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101 [1] Tonga, named by Captain James Cook "The Friendly Islands," is composed of
some 150 to 200 islands and islets with perhaps only 25 percent of those being inhabited.
133 The islands are a form of raised limestone, or volcanic formations and limestone
formations (Anonymous 1944: 16). The most recent work indicates that the total land
131 area of the archipelago is 256.42 square miles, with the Tongatapu Group (the main
island of Tongatapu with surrounding small islands but excluding the island of 'Eua)
having 100.37 square miles of that total or some 39.1 percent (Maude 1965: 218).
161 Tongatapu Island is approximately 99 square miles in area. The estimated population
for the entire archipelago for December 31, 1970 was 86,055 (Tapa 1971: 4).

101 The territorial boundaries of the Kingdom of Tonga were proclaimed by King
George Tupou I to be 15°S and 23°S and 173°W and 177°W (*Tonga Government
131 Gazette*, 2: 55, August 24, 1887). The islands of the Kingdom thus fall within a rectangle
of the South Pacific some 596 miles North-South by 264 miles East-West, with the
outer islands of the Kingdom being Niua Fo'ou Island to the North at 15°34'S and
175°40'W, and 'Ata Island to the South at 22°20'S and 176°12'W. 'Ata Island is
approximately 100 miles southeast of the main island of Tongatapu and Niua Fo'ou
Island is approximately 232 miles northwest of the Vava'u group of Islands.

101 Tonga derived its name from the principal island of the group, Tongatapu Island or
'sacred' Tonga. The *tapu* was probably appended to the Tonga because this island
became the residence of the leaders of the archipelago. Tongatapu Island was the focal
point for the political and religious system in the archipelago prior to and after Euro-
133 pean contact. The Polynesians who settled the archipelago appear to have chosen this
relatively flat island because of terrain and climate. The middle, or Ha'apai group of
islands are a series of low islets. The northernmost island group of Vava'u has relatively
high hills, with most of the land being at least one hundred feet above sea level (as
opposed to Tongatapu Island which is no higher than two hundred feet along the
133 southern or *liku* coast). Vava'u was, and is, subject to more destructive hurricanes than
132 Tongatapu during the hurricane season and it was only on Tongatapu that relative
permanency of Tongan culture and continuity of leadership could be maintained for
182 generations.

67: Maude K-5 (1961) 1973 OU9 Tonga OU9

7 Land shortage and population pressure in Tonga

Alaric Maude

121 The problems of land shortage and population pressure in small
islands with only limited resources have been recurrent themes in
recent geographical research in the Pacific islands, particularly in
island Polynesia where populations are now generally increasing at
rates of between 3 and 3·5 per cent annually. This essay is concerned
with the chain of islands in western Polynesia which form the
131 Kingdom of Tonga (Fig. 7.1). The 150 islands of the Kingdom,
161 comprising the three main groups of Tongatapu, Ha'apai and
Vava'u, and a number of outlying islands, have a total land area of
only 663km^2 and support a population of about 87,000 (1970 esti-
433 mate). The Kingdom's only natural resources are the soil and the
surrounding reefs and seas, and the economy is overwhelmingly
241 agricultural, being based largely on subsistence food cropping and
161 the export of bananas, copra and desiccated coconut. With a limited
area of land, a population density in 1970 of about 185/km^2 of arable
182 land, and a projected annual population growth rate of 3·1 per cent,
Tonga faces potential problems of land shortage and population
pressure as severe as in any other nation or territory in the Pacific
Islands, with the exception of some of the atoll groups.

121 The focus of this essay is on man/land relationships, for with an essentially agricultural economy these are central to Tonga's population problem. The main objective is a search for, and examination of, possible symptoms of population pressure within the man/environment system. Particular attention is paid to land tenure, which determines how land is allocated amongst the population; the agricultural system, agriculture being by far the most important use of land; and the perception of, and reponse to, population pressure by Tongans. At a more theoretical level, the final part of the essay

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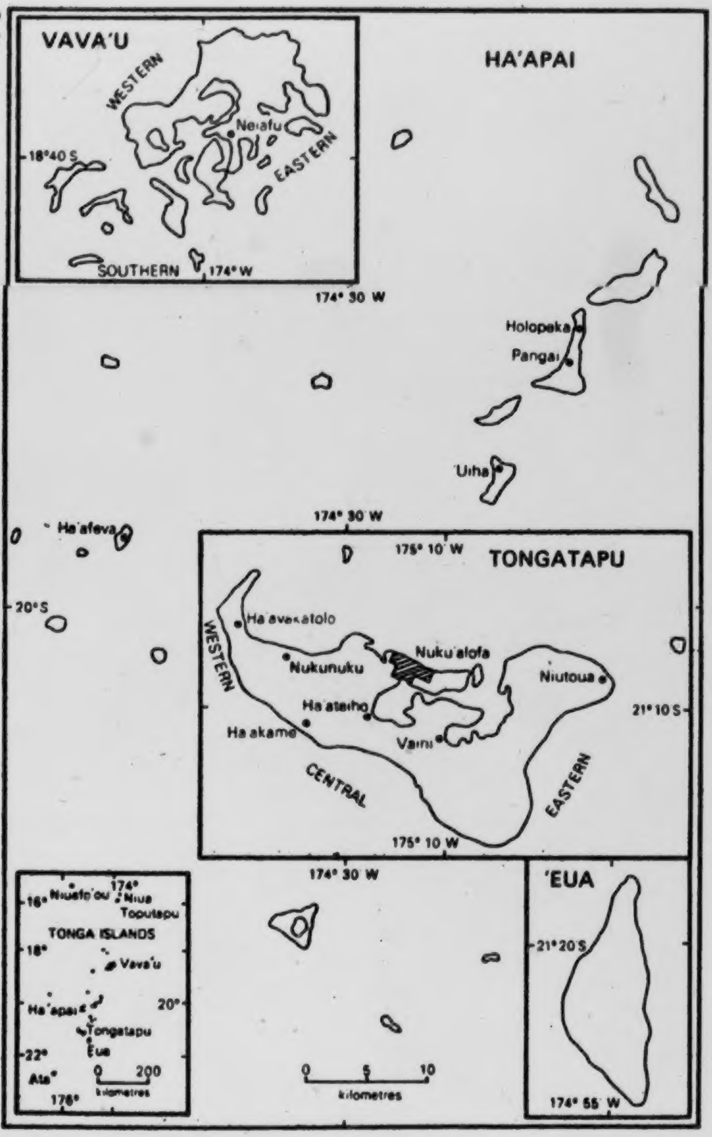
VAVA'U
WESTERN
Neiafu
EASTERN
18°40 S
SOUTHERN
174° W
HA'APAI
174° 30 W
Holopeka
Pangai
'Uiha
174° 30 W
Ha'afeva
20° S
TONGATAPU
175° 10 W
Ha'avakatolo
WESTERN
Nuku'alofa
Nukunuku
Niutoua
Ha'ateiho
21° 10 S
Ha'akame
Vaini
CENTRAL
EASTERN
175° 10 W
174° 30 W
174°
16°
Niuafo'ou
Niua Toputapu
TONGA ISLANDS
18°
Vava'u
Ha'apai
20°
Tongatapu
22°
'Eua
Ata
0
200
kilometres
176°
0
5
10
kilometres
'EUA
21° 20'S
174° 55' W

Fig. 7.1 The Kingdom of Tonga: location map

[p. 164]

[445]

175 [565] As soon as the captains had delivered their present, they returned to the ships, and the chief came on board with us. Our anchor was weighed, our sails were spread to the wind, and we forsook this happy island when we had scarce discovered its beauties. [439] [565] [609] The chief, after selling a number of fish-hooks for nails and beads, hailed one of the canoes which were passing by, and left us with looks which spoke his friendly, open disposition.

[101] [133] We now sailed along the western shore of Tasman's Amsterdam island, which the natives called Tonga-Tabboo, and found it a very [131] low flat land, compared with that which we had left. The middle of this island is nearly in 21° 11′ S. latitude, and 175° W. longitude. [133] Its highest elevation above the level of the sea, appeared to the [311] [184] eye never to exceed six or seven yards perpendicular. On the other hand, its extent was much more considerable than that of Eaoowhe, and by the help of our spying-glasses, we discovered the same regular plantations which we had so much admired there, and saw the shores crouded with inhabitants, who gazed at us, probably with as much attention as we bestowed upon them. When we were about half way between both islands, or nearly three leagues from each, we were met by several canoes full of men, who attempted to come along-side, but as we happened to be too far to windward, they could only fetch the Adventure, where they came on board.

175 133 [446] In the afternoon we approached the northernmost end of the island, and perceived some small isles connected by reefs to the eastward. Their situation and that of the shoal to the northwest, where the sea broke with great violence, convinced us that we were now arrived at the very place where Tasman anchored in 1643,

[479 cont.]

000
175 smile as he conversed with Attagha. Among the croud, we observed
302 a single man, who differed from all the rest, by having suffered
184 his hair to grow, and having twisted it into several round bunches, which hung wildly about his ears. This man, and the young girl mentioned page 468.^A were the only persons we met with, who had [480] not conformed to the general custom of cutting off the hair.

175 After a short conversation with the natives, of whom we bought
439 a variety of their tools, on account of their elegant carving, we returned on board to breakfast, and immediately after weighed the
175 anchors and set sail. The provisions lying in confused heaps on the decks, prevented our going into the open sea immediately. We therefore kept standing off and on, under shelter of this island, and did not take our departure till towards evening, when we shaped our course southerly.

The next morning [October 8], the weather being nearly calm, we caught a shark, eight feet long, consequently bigger than any
175 we had seen before. In the afternoon we saw the little isle which
101 Tasman calls Pylstaerts Island. This name refers to the birds,
175 which the Dutch navigators observed there, and which in all proba-
136 bility were tropic birds. Pylstaert literally signifying arrow-tail, alludes to the two long feathers in the tail of this bird, from whence
175 its French name of paille-en-queue is likewise derived (26). Its
131

175 latitude is 22° 26' S. and its longitude 170° 59' W. A contrary S. W. wind which sprung up towards evening, obliged us to cruize about till the 10th in the morning, when we came [481] in sight of this
[133] little islet again. It is of a moderate height, and has two hummocks,

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26. See Mr. Dalrymple's Collection, vol. II. p 75. where they are called wild ducks.

A [See p. 55 of HRAF manuscript--Analyst.]

[186 cont.]

133 The island of Namoka, which we left after a stay of two days only,
162 was not above fifteen miles in circuit, but seemed to be remarkably
populous, It lies in 20° 17' S. and 174° 32' W. In the group
131 175 of islands which appeared around it, its size was the most considerable
133 but all seemed to be well inhabited, and very rich in vegetable pro-
162 137 ductions. They are situated on a kind of bank, on which there is from
175 nine to sixty and seventy fathom water, and the soil is probably
133 the same in every island. Namoka consists, like Tonga-Tabboo, of a
175 coral-rock, covered with a rich mould on which all sorts of vegetables
[194] thrive. We had no time to examine the hillock in its centre, which
seems to have had a different origin, and may perhaps be volcanic.
At present it is wholly covered with the richest groves, like the
312 rest of the island. The abundance of fresh water in the pond, is an
175 advantage which the people of Namoka enjoy [187] in preference to those
[515] of Tonga-Tabboo; but it does not appear that they bathe so regularly
as the Taheitians, perhaps because the stagnant water is not very in-
[823] viting. Its advantage is however so much felt, that the natives brought
[415] it to the ship in calabashes, and did the same to Tasman, which implies
that it is looked upon as a valuable article among them. The abundance
137 175 of water, and the richness of the soil likewise seems to be the reason,
that bread-fruit and shaddock trees are much more frequent, and all
[417] vegetation infinitely more luxuriant than on Tonga-Tabboo. The fences
on that account are not laid out, and kept up with that extreme
regularity, though they are still preserved in part. The long walks
of fruit-trees, and the delightful green turf under them, were rather
to be compared to the richest spots on Ea-oowhe, or Middleburg Island.
The tufted arbours which vaulted over the paths, are hung with beautiful

Chapter II

THE KINGDOM OF TONGA
AND THE RESEARCH SCENE

Geography and Geology

131 101 Tonga is an island nation situated near the western edge of the Polynesian culture triangle. The Kingdom consists of over 150 islands divided into three geographically separate groups: Vava'u in the north, the Tongatapu group in the south, and Ha'apai between them (Map 1). Niuafo'ou lies to the north of Vava'u and is the most northerly of the Kingdom's possissions. About 450 miles south of Niuafo'ou lies 'Ata, the most southerly extension of the archipelago.

133 Geologically Tonga consists of islands formed by two processes-volcanic eruption and elevation of limestone formations so that both "high" islands and "low" islands are represented (Thomas 1967: 13-18). By island type the archipelago is divided into two chains both running north by northeast, with the volcanic chain to the west of the corraline chain and running parallel to the latter.

132 Tonga has a climate of moderate temperatures and precipitation. Winds are generally from the southeast and seldom reach hurricane speeds. Rainfall, temperature, and humidity generally increase from the south to the north. For instance, in 1970 annual rainfall on Tongatapu measured 77.59 inches and on Hiuatoputapu 98.09 inches were recorded. Temperature on Tongatapu varied from a daytime high of 88.5° F.

[TEXT CONTINUED ON PAGE 13]

73: Morton E-5 (1970-1971) 1977 OU9 Tonga OU9
Puke

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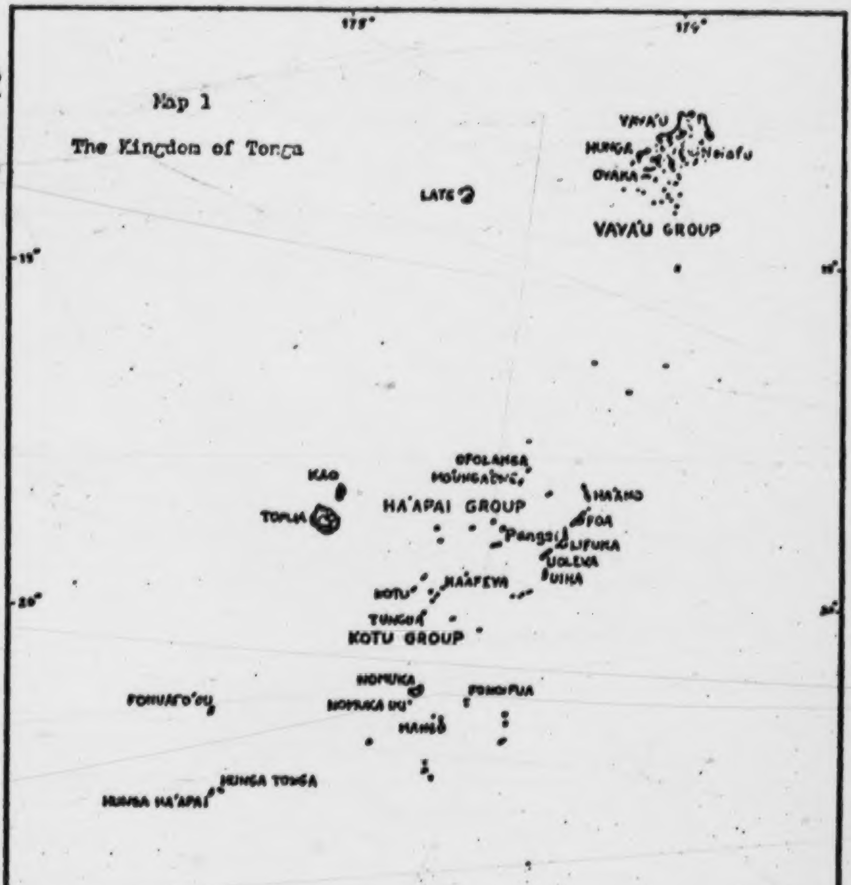

Map 1

The Kingdom of Tonga

175°
174°
VAVA'U
HUNGA
Neiafu
OVAKA
LATE
VAVA'U GROUP
19°
OFOLANGA
MO'UNGA'ONE
KAO
HA'APAI GROUP
HA'ANO
TOFUA
FOA
Pangai
LIFUKA
UOLEVA
UIHA
KOTU
HA'AFEVA
20°
TUNGUA
KOTU GROUP
NOMUKA
FONOIFUA
FONUAFO'OU
NOMUKA IKI
MANGO
HUNGA TONGA
HUNGA HA'APAI
21°
ATATA
Nuku'alofa
'EUA IKI
TONGATAPU
TONGATAPU GROUP
'EUA
0
50
MILES
175°
174°

The Village and the Research Scene

101 The village selected for research is on the main island of the
103 Tonga group, Tonatapu. Its name is Puke (pronounced Pookay, please).
[361] Gifford (1926: 196) in his catalogue of Tongan place names enters Puke
as the gloss of fortress.[A] However, the term has several seemingly unrelated definitions in the Tongan language; the villagers thought the name referred to a small hill in the village as the term denotes the
[361] small hill above a planted yam. The village is located about 3 miles
[131] west of Nuku'alofa; it is 1/4 mile from the main road going west from
Nuku'alofa and about twice that distance from the lagoon to the north (See Map 2).

133 The terrain of the village and surrounding lands is flat and low-
361 lying. Village boundaries are easily distinguishable as fallow, and
[241] producing garden plots stop abruptly at the perimeters of the village compound. For some purposes the village and its population are divided into three geographically defined sections. The sections are the eastern section (*vahe hahake*), the central section (*vahe loto*), and the western section (*vahe hihifo*); the sections are under the leadership of the noble, the church steward, and the town officer, respectively.

361 Within the village are small patches of low-lying bush and many
245 trees have been left standing or planted; most prominent among the latter are the coconut palm (*niu*), breadfruit (*mei*), mangoe (*mango*), and
[824] tje *tava* and *'ifi* trees. Many of the plants and trees growing within
[262] the village have uses as food, medicine, or decoration.

[278] A. [What Gifford actually says is "the outworks of a fortress". See 4: Gifford, this file p.196--Analyst]

73: Morton E-5 (1970-1971) 1977 OU9 Tonga OU9
Puke

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● 131
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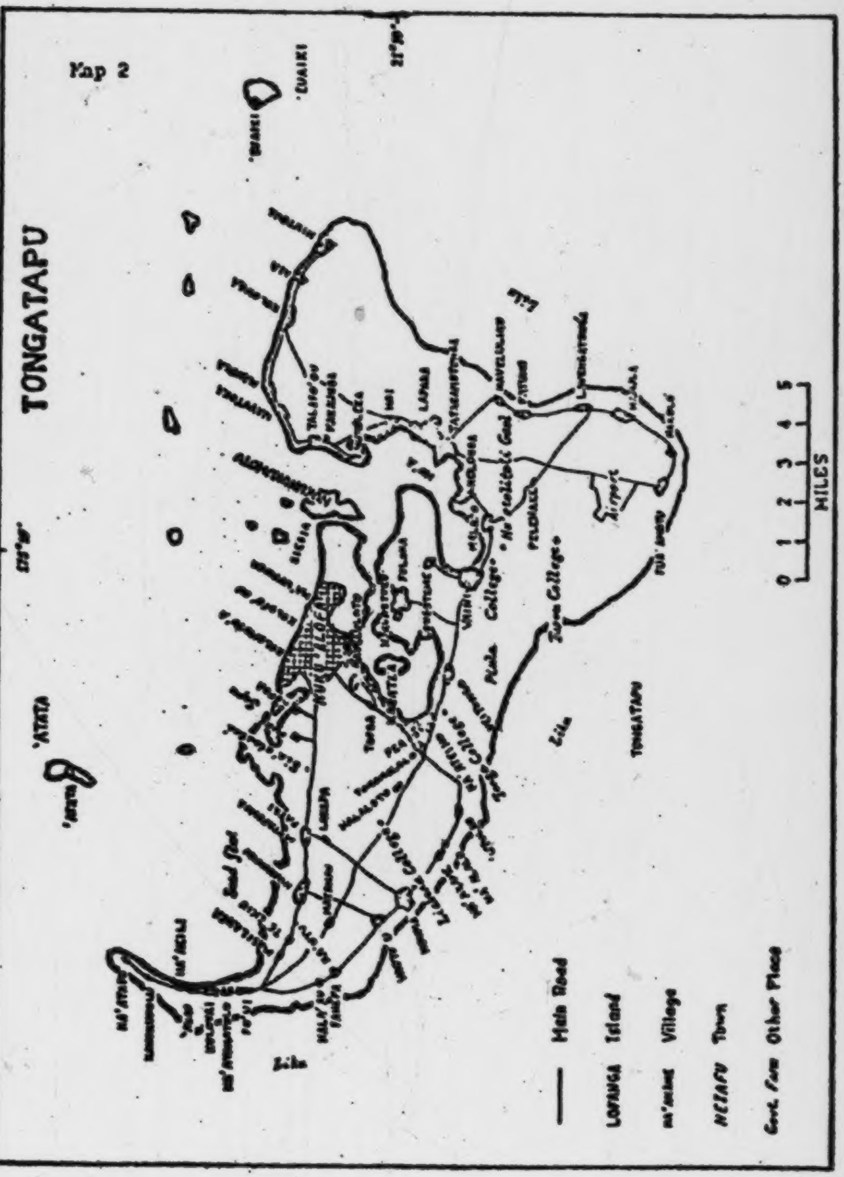
TONGATAPU
Map 2
'ATATA
'EUAIKI
NUKU'ALOFA
Sand Flat
Liahona College
Tonga College
Piula College
Hu'atolitoli Gaol
Tupou College
Airport
Lihu
TONGATAPU
Main Road
LOFANGA Island
MA'ASIMA Village
NEIAFU Town
Govt. Farm Other Place
0 1 2 3 4 5
MILES

128 For this dissertation examples are drawn from sources pertaining
101 to the Polynesian archipelago of Tonga. Tonga derived its name from
103 the principal island of the group, Tongatapu or sacred Tonga. The
"tapu" was probably appended to the "Tonga" because this island became
101 the residence of the leaders of the archipelago. Tongatapu Island was
the focal point for the political and religious system in the archipelago
174 prior to and after European contact. The Polynesians who originally
133 settled all of the Tongan archipelago appear to have chosen
this relatively flat island, no higher than 200 feet above sea level
along points on the southern or cliff-bound liku coast, because of
133 terrain and climate. The middle, or Ha'apai, group of islands, traditionally
set off from Tongatapu by the volcanically formed islands of
Hunga Ha'apai and Hunga Tonga, are a series of low islets. The northernmost
island group of Vava'u has relatively high hills, with most of the
132 land being at least 100 feet above sea level. Vava'u was, and is,
182 subject to more destructive hurricanes than Tongatapu during the hurricane
season and it was only on Tongatapu that relative permanency of
material culture and continuity of leadership could be maintained for
generations.

131 The territorial boundaries of the Kingdon of Tonga were proclaimed by King George Tupou I to be 15°S and 23°S and 173°W and 177°W (Tonga Government Gazette, Vol. 2, No. 55, August 24, 1887). The islands of the Kingdom thus fall within a rectangle of the South Pacific some 596 miles North-South by 264 miles East-West, with the outer islands of the Kingdom being Niua Fo'ou Island to the North at 15°34'S

131 and 175°40'W, and 'Ata Island to the South at 22°20'S and 176°12'W. 'Ata Island is approximately 100 miles southeast of the main island of Tongatapu and Niua Fo'ou Island is approximately 232 miles northwest of the Vava'u group of islands.

133 The Kingdom of Tonga consists of some 150 to 200 islands and islets, with perhaps only 25% of these being inhabited. The islands are a form of raised limestone, or volcanic in origin, or a combination of marine volcanic formations and limestone formations (Anonymous 1944: 131 16). The most recent work indicates that the total land area of the Kingdom is 256.42 square miles, with the Tongatapu Group (the main island of Tongatapu with surrounding small islands but excluding the island of 'Eua) having 100.37 square miles of that total or some 39.1% (Vide Maude 1965: 218). Tongatapu Island is approximately 99 square 161 miles in area. The estimated population for the entire Kingdom for December 31, 1970 was 86,055 (Tapa 1971: 4).

European Contact

175 Part of the Tongan archipelago was first contacted by the Dutch 177 navigators Schouten and Le Maire in 1616, and various contacts with Europeans followed: 1643 (Tasman), 1767 (Wallis), 1773, 1774 and 1777 (Cook), 1781 (Maurelle), 1787 (La Perouse), 1789 (Bligh), 1792 (Edwards), 1792 (Bligh), 1793 (D'Entrecasteaux and Labillardiere), and 1793 (Malaspina) (Vide Colson 1885: 257ff.; Tudor 1968: 125-127). These contacts between Europeans and Tongans were sporadic and lasted for periods of a few days to a few weeks. The accounts written by these

Plants of Tonga[1]

By T. G. YUNCKER

Professor of Botany, DePauw University

INTRODUCTION

The Tongan archipelago is a group of 150 or more islands and islets of 101 volcanic and coral formation. Of these, only a relatively small number are [133] sufficiently large or topographically suitable for plantations adequate to support populations of any size. Most of the islands are arranged in three main, roughly circumscribed, areas situated in the southern, central, and northern parts of the archipelago known as the Tongatapu, Ha'apai, and Vava'u groups respectively. The islands of these three groups are arranged in two roughly parallel [131] lines from slightly southwest to northeast in the south Pacific Ocean between 15° and 23° south latitude and 173° and 177° west longitude. To the north, and somewhat remote from the northern Vava'u group, lie the volcanic islands of Niuafo'ou, Tafahi, and Niuatoputapu (Keppel). The islands of the eastern 101 line are the more numerous and are of coral origin. For the most part, they are 133 low, flat, and topographically uninteresting. The western line, extending from the extreme southern and at present uninhabited island of 'Ata to Niuafo'ou on the north, is of volcanic origin. It includes the island of Kao in the Ha'apai group which rises to a height of about 1,000 meters, the highest of the Tongan islands. Some of the islands—for example, Tofua, Fonualei, and Niuafo'ou—are still volcanically active. Tongatapu, the largest of the coral islands, with an area of nearly 100 square miles, is very flat and reaches an altitude of scarcely 90 meters at its highest point. On it is located Nuku'alofa, which is the largest [361] town in Tonga and the seat of government (fig. 1, *a*).

A few miles to the east of Tongatapu lies the island of 'Eua, about 35 square 133 miles in area and composed of a volcanic base overlaid for the most part with [131] limestone. It has been built up to a height of approximately 300 meters at its highest point. An elevated ridge runs along the eastern side of the island, rendering that coast rugged and very picturesque (fig. 1, *b*). The seaward face of this ridge is precipitous in places, and some parts are reached only with great difficulty. A much lower ridge, with a maximum height of about 100 meters, lies toward the western side. The ridges and slopes, especially those 137 on the eastern side, are well covered with native vegetation. Here, one finds some of the largest trees and densest forests in all Tonga. Specimens of

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[1] The opportunity to visit the Tongan Islands and collect the data upon which this study is based was made possible by a John Simon Guggenheim Memorial Foundation Fellowship and a grant from the National Science Foundation. The manuscript was completed in 1955 and submitted to Bishop Museum for publication. [122]

[TEXT CONTINUED ON PAGE 5]

Laportea harveyi, Rhus taitensis, Alphitonia zizyphoides, Dysoxylum spp., 137
and other trees may reach considerable size. Tongatapu and 'Eua are the only [101]
permanently inhabited islands of the Tongatapu group.

The central, or Ha'apai, group is about 90 miles from Tongatapu. It in- 131
cludes the main islands of Lifuka, the former capital and site of the Chief's 101
Palace; Nomuka; Kao; Tofua; and a large number of smaller islands, many of which now support no permanent inhabitants.

Vava'u, the largest and principal island of the Vava'u group, has an area 133
of approximately 35 square miles and reaches an altitude of about 150 meters
along the precipitous northern coast. Its surface is uneven and the southern, [504]
very irregularly and deeply indented coastline provides a beautiful and com- [361]
pletely land-locked harbor, where the principal town of Neiafu is situated. At the northwestern part of the island is a lake of brackish water and nearby is a rather large swamp of marshy area unique in the islands. Another, a large central lake connected at one point with the sea during high water, is found on the island of Nomuka in the Ha'apai group. Large crater lakes also occur
on Tofua and on Niuafo'ou. Ocean-going steamers are able to dock at Neiafu 504
in Vava'u and at Nuku'alofa on Tongatapu. Cutters and interisland boats can reach a jetty at the village of Pangai on Lifuka Island in the Ha'apai group, and it is possible for very small boats to make a landing at a makeshift dock on 'Eua. And it is usually possible, in moderate seas, to get ashore from
canoes or other small boats on the other low coral islands. It is much more 504
difficult, however, to land on the volcanic islands of Tofua, Kao, Late, Niua- 133
fo'ou, or Tafahi where most of the coast is steep and abrupt and where protecting reefs are lacking or do not break the often strong wave action. These islands can be reached only by canoe or small boat and under most favorable weather conditions, or by swimming from larger boats which must stand well off shore for safety.

The population of Tonga is nearly 50,000. It is heavily concentrated on 161
the islands of 'Eua, Tongatapu, Nomuka, Lifuka, and Vava'u and some of the 162
smaller adjacent islands. The volcanic islands of 'Ata, Tofua, Kao, Late, and
Niuafo'ou have few or no permanent inhabitants at the present time. The [731]
former population of about 1,300 on Niuafo'ou was evacuated after the dis- [166]
astrous volcanic eruption in 1946, and at present makes up a large part of the population on 'Eua. (See figure 2.)

The more heavily populated islands show a high percentage of land utiliza- 137
tion, the indigenous plant species surviving only in occasional uncultivatable [311]
areas, usually near the sea. Everywhere grows a number of species of greater or lesser usefulness presumably brought to the islands by the aborigines as they arrived in Tonga from other islands. These species predominantly show Asiatic, African, or Malaysian origin. A possible exception is the sweet potato, and there is considerable question as to how it reached Polynesia. In this group one may include that most useful of all plants for island peoples, the coconut.

1 *Traditional Polity in Tonga*

Near the centre of the 70,000,000 square miles of the Pacific 131
Ocean lies the smallest kingdom in the world, Tonga. Situated
1,100 miles north-east of New Zealand and 420 miles south-east
of Fiji, it consists of more than 150 small islands which are
scattered between 15° and 23° south latitude and 173° and 177°
west longitude. The kingdom is divided into three main island
groups, Tongatapu to the south, Ha'apai in the centre, and Vava'u
to the north. The total area of the whole group is 269 square [361
miles, though only thirty-six of the islands are inhabited by the
population which numbered about 90,000 in 1972, 97.5 per cent 161
of whom are native and belong to the Polynesian race. Using 162]
oral traditions, particularly genealogies, ethnohistorians have concluded
that the ancestors of the present inhabitants of Tonga 174
arrived at the group from Samoa in A.D.950 (Gifford 1929:50;
Wood 1932:6). However, recent archaeological and linguistic
evidence suggests that Tonga has been occupied for a much
longer period and was settled probably from the north-west rather
than from Samoa (see Green 1966:6-38; Groube 1971:278-316).

Long before the coming of the Wesleyan missionaries to Tonga 642
there was a highly organised socio-political system somewhat
similar to that found in other Polynesian societies, based on the
rule of the chiefs. However, Tonga was unique in Polynesia, and 643
in the Pacific as a whole, in that it had a traditional monarchical
system under the headship of the Tu'i Tonga. In fact, the institution
of Tu'i Tonga had developed through the years into something
similar to the Dalai Lama of Tibet and the Mikado of
Japan.

Originally, the whole of Tonga was under the sovereignty of [173]
the Tu'i Tonga. The first Tu'i Tonga, 'Aho'eitu, who began his
rule in Tonga in about A.D.950, was believed to be the son of
Tangaloa, the god of the sky, and an earthly mother (Gifford
1924:25, 38; Wood 1932:5) thereby encompassing in his person

79: Lātūkefu H,I, M-4,5 (1964-1965) 1974
(1822-1875)
OU9 Tonga OU9

102
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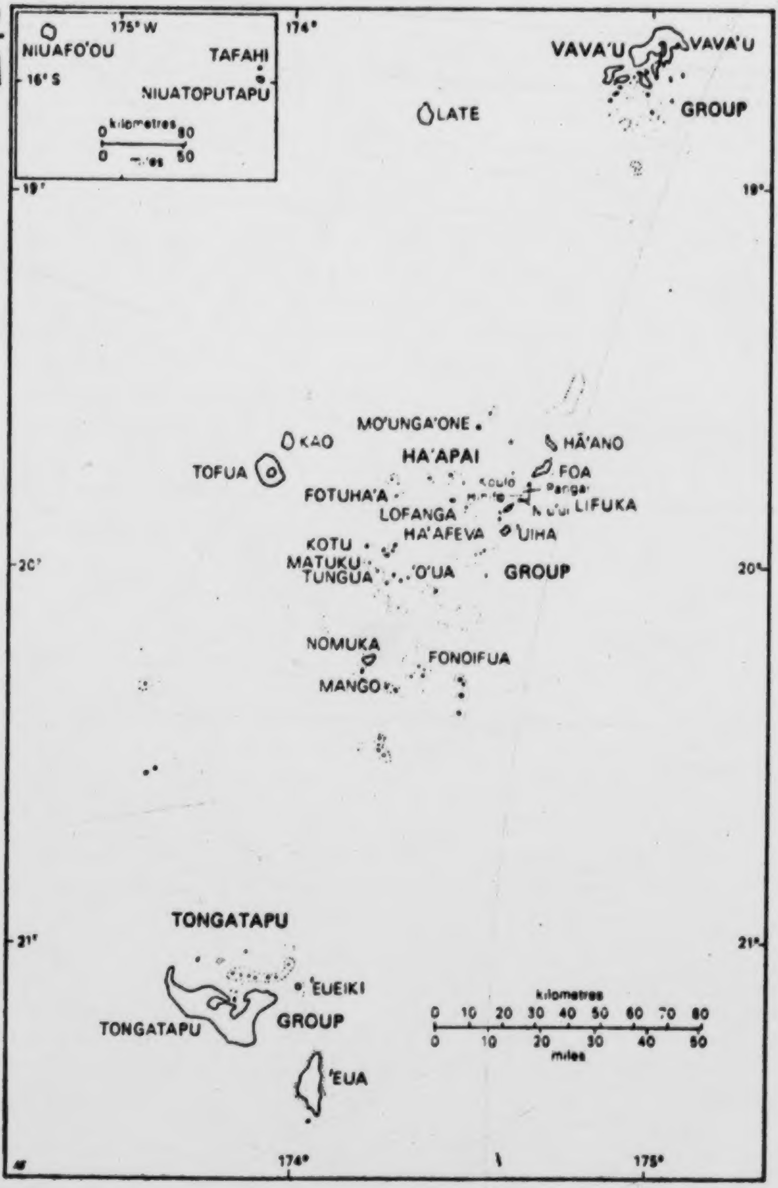
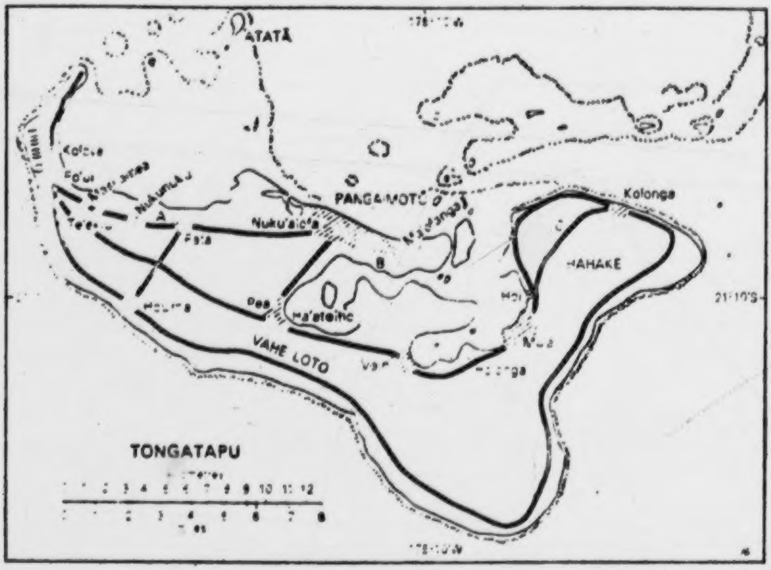

175° W
NIUAFO'OU
TAFAHI
16° S
NIUATOPUTAPU
kilometres
0
80
0
miles
50
174°
VAVA'U
VAVA'U
GROUP
LATE
19°
19°
MO'UNGA'ONE
KAO
HA'APAI
HĀ'ANO
TOFUA
FOA
Koulo
Pangai
Hihifo
Hu'ui
LIFUKA
FOTUHA'A
LOFANGA
HA'AFEVA
UIHA
KOTU
MATUKU
TUNGUA
'O'UA
GROUP
20°
20°
NOMUKA
FONOIFUA
MANGO
TONGATAPU
21°
21°
'EUEIKI
TONGATAPU
GROUP
'EUA
kilometres
0 10 20 30 40 50 60 70 80
0 10 20 30 40 50
miles
174°
175°

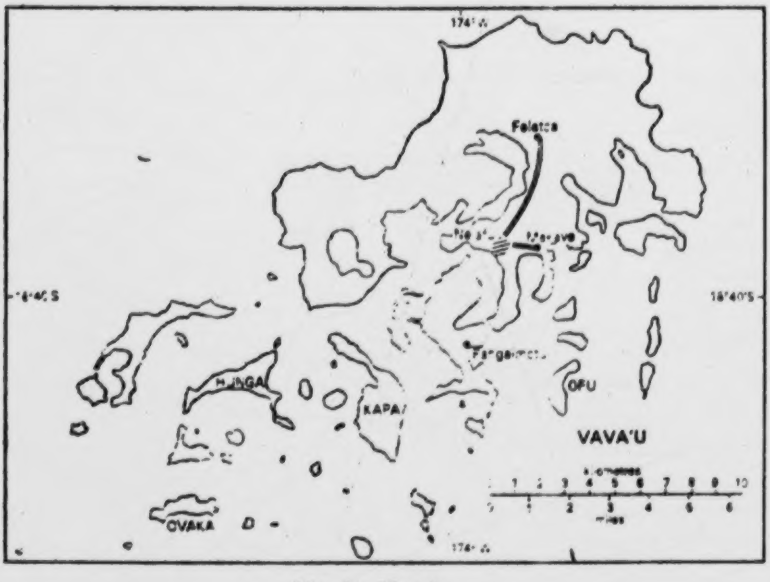
Map 1 Tonga.

79: Lātūkefu H,I,M-4,5 (1964-1965) 1974
(1822-1875)
OU9 Tonga OU9

102
131
361


ATATĀ
Kolovai
Fo'ui
Nukunuku
A
Te'ekiu
Fatai
Nuku'alofa
PANGAIMOTU
Kolonga
B
C
HAHAKE
Hoi
Pea
Ha'ateiho
Houma
VAHE LOTO
Vaini
Mu'a
Holonga
21°10'S
TONGATAPU
Kilometres
0 1 2 3 4 5 6 7 8 9 10 11 12
0 1 2 3 4 5 6 7 8
Miles

Map 2 Tongatapu. A. Hule. B. Ngele'ia. C. Poha.


174°W
Feletoa
Neiafu
Makave
18°40'S
18°40'S
Pangaimotu
HUNGA
KAPA
OFU
VAVA'U
OVAKA
Kilometres
0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6
Miles
174°W

Map 3 Vava'u.

6

Tonga[1]

EQUALITY OVERTAKING PRIVILEGE

ALARIC MAUDE

423 THE SYSTEM of land tenure which has existed in the Kingdom
of Tonga since the late nineteenth century differs in many
641 respects from those of other parts of the South Pacific, its two
most distinctive features being that land rights are granted solely
to individuals, and that every taxpayer (that is, every male
Tongan aged sixteen years and over) is entitled to eight and
one-quarter acres of agricultural land and a small town allotment
121 on which to build his house. These features, and others described
below, raise a number of questions. Does the present system
differ significantly from that of the pre-contact past? How effective
is it in practice, and does it provide a sound basis for agricultural
development? Are tenure changes necessary to cope with the
present rapid population growth? This chapter attempts to
answer these questions.

131 The 150 islands of Tonga are scattered over 450 miles of ocean
[161] in Western Polynesia. With a total land area of only 256 square
miles they support a population of about 80,000 persons. The
133 Kingdom's only natural resources are the soil and the surrounding
reefs and seas, and the economy is overwhelmingly agricul-
[433] tural. Over ninety per cent of Tongans live in the three main
[361] groups of Tongatapu, Ha'apai and Vava'u, where the islands
are of raised limestone formation. The surface of Tongatapu is
flat or very gently undulating and as in all the islands of this
type there are no permanent streams. The islands of Ha'apai
are small, low and scattered, while those of Vava'u are higher
134 and have a terraced appearance. About eighty-five per cent of
the total land area of the raised limestone islands is suitable for
cultivation, and the soils, being largely derived from volcanic
ash, are very fertile. The main soil type of these islands is a

state, church, and education. As a surviving, highly visible sector of legally 565
supported hereditary privilege, offering exclusive access to sources of wealth, 178
influence, and power within the Tongan new order, the nobles are increasingly 565
criticized by Tongans and outside observers as a source of injustice in a society 565
that was created on the themes of emancipation and individual liberty. The 178
tempo of such criticisms has increased significantly since the succession in 829
1965 of Tupou IV, who is committed to modernization and closer relations 185
with other regional and world governments.

Although viewed stereotypically by some as an anachronistic and 565
conservative segment of society, the nobility in terms of the composition and
activities of its membership cannot be fairly characterized so one-dimensionally.
As social historians have shown for old elites in the transformations of European [171]
societies (see Moore, 1967; Stone, 1965), the composition of Tonga's hereditary
nobility, although fixed and rigid in principle, has been characterized by a
degree in fluidity. Further, its response to generally modernizing and liberating
changes has in fact revealed some degree of flexibility and accommodation.

Issues raised in the public litigation of noble succession, a matter determined 565
by law and the Tongan Land Court, offer a perspective on the nature of the 428
social composition of the nobility and also on the significance of the noble
title system as a determinant of social status in modern Tonga. The purpose 121
of this paper is to present a detailed account of noble succession disputes and
to discuss what these disputes indicate concerning the position of the nobility
in modern Tongan society. I have described the modern social contexts and 114
activities of the nobility elsewhere (Marcus, 1975b).

Trends of Change in Tongan Society

The Kingdom of Tonga consists of an archipelago of 150 islands with a 131
total area of 269 square miles. These islands are just west of the International
Dateline, about 430 miles southeast of Suva, Fiji, a similar distance southwest
of Western Samoa, and about 1,200 miles northeast of Auckland, New Zealand.

Only about 36 islands of the archipelago are inhabited, and these are 361
clustered in three main groups: the southern or the Tongatapu group, including
the single largest island of the Kingdom, Tongatapu, on which the port capital
of Nuku'alofa is located; the middle or Ha'apai group of widely scattered small
islands; and the northern or Vava'u group of islands. The rapidly increasing 161
population has been estimated to have reached 100,000. In recent years, land
shortage and rising aspirations, resulting from increased contacts with the outside, 178
have been accompanied by marked increases both in internal migration from 166
the outer islands to Tongatapu and in temporary and permanent migration 167
abroad to countries such as New Zealand and the United States. The Tongan
economy is predominantly agricultural, based on mixed-crop production by 433
241

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

GEOGRAPHY OF TONGA.

THE TONGAN ISLANDS: THEIR POSITION AND FORMATION.

131 There are over 150 islands in the Tongan group, but most of them
[161] are very small and only 36 are inhabited. The total area is 269 square
miles, and the population is 28,839. Thus Tonga is one of the smallest
groups in the Pacific Ocean, very much smaller than Fiji or Samoa, for
example.

631 The islands are divided into three main groups; these are, TOGA-
TABU in the south, HA'ABAI in the centre, and VAVA'U in the north.
131 Ha'abai is an extensive archipelago of very small islands, but the Toga-
tabu and Vava'u groups consist of one larger island as well as many small
adjacent islands in each case. This division is not merely geographical
[504] but also commercial and political. The three ports of call are Nuku'alofa,
the capital, in Togatabu; Lifuka, the main island of Ha'abai; and Neiafu,
[634] the chief village of Vava'u. The Government is represented by separate
Governors in Ha'abai and Vava'u.

131 Although the total area of Tonga is so small, the islands are scattered over a comparatively wide expanse of the South Pacific Ocean, between 15° and 22° South Latitude and 173° and 175° West Longitude. The position of Togatabu is 21° South Latitude and 175° West Longitude. Vava'u is in approximately the same latitude as Townsville, and Togatabu as Mackay, North Queensland.

805 Tonga actually is in the Western Hemisphere, but in spite of this it
observes eastern time, that is, the same time as places in the Eastern
Hemisphere (Europe, Asia, etc., and as far as Fiji), and not the time
of the Western Hemisphere (America, etc.). For instance, when it is
2.20 p.m. Thursday at Nuku'alofa, it is 2 p.m. at Suva, 1.30 p.m. at
Auckland, 12 noon at Sydney and 2 a.m. at London—all these times
being on Thursday—but it is Wednesday, 6 p.m. at San Francisco (U.S.A.)
and 2.30 p.m. at Apia. Although it is 2.30 p.m. in Samoa when it is
805 2.20 p.m. in Tonga, nevertheless, the day is rightly called Wednesday
648 in Samoa, while in Tonga it is called Thursday, owing to the fact that,
as Tonga's commercial dealings are chiefly with Australia, New Zealand
and Fiji, it observes the same day as those countries.

131 Nuku'alofa is 2,000 miles direct from Sydney; by the steamer route, the distance is 1,740 miles from Sydney to Suva, and 430 miles from Suva to Nuku'alofa. The distance from Nuku'alofa to Auckland is 1,100 miles, about 50 miles less than from Suva to Auckland.

133 The Tongan Islands are called oceanic islands, as they are not close to a continent nor surrounded by shallow water, thus differing from continental islands like Great Britain. The ocean west of Tonga is less than two miles deep, but east of 'Eua it is over five miles deep; indeed, there is a very deep trough or ocean-valley, called the Tonga Deep, which passes east of Tonga and continues to the east of New Zealand, reaching a depth of nearly six miles off the Kermadec Islands between Tonga and New Zealand. The Tonga Deep is one of the deepest parts of the

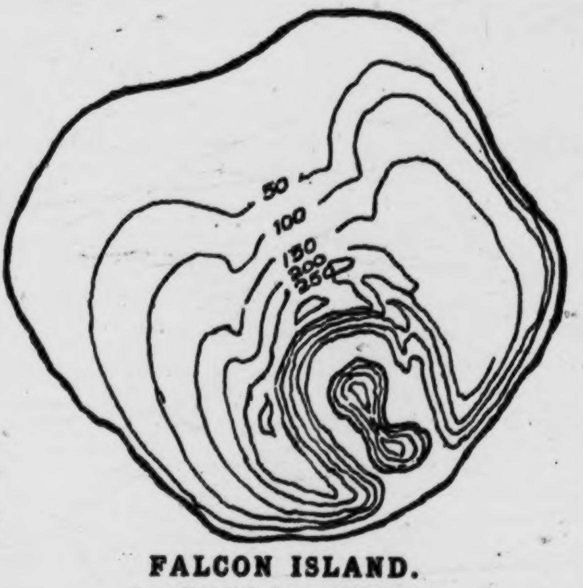
87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

THE VOLCANIC ISLANDS
(INCLUDING FALCON ISLAND AND NIUA FO'OU).

175 (1) 'ATA. Tasman sighted this island in 1643 as he sailed from
103 New Zealand, and he gave it the name of Pylstaart. It is 85 miles S.S.W.
of Togatabu. There are two peaks, the higher being 1,165 feet, but the
133 volcano is extinct. 'Ata contains deposits of guano, suitable for manure,
135 but the lack of a harbour renders these useless commercially. The island
was formerly inhabited. One account stated that people drifted there
174 from Tofua, Tugua and also from Houma in Togatabu, and relationship
with people in those places has been claimed by descendants of the 'Ata
166 people. Another explanation is that 'Ata was settled by refugees from
Atata who fled from the invasion of a cannibal chief, 'Uhila, of Nomuka,
and that these intended to flee to Togatabu but were blown south in a
storm. Still another account relates that refugees from Atata fled in
this way but it was because of the invasion of their island by Finau Ulukalala II in 1799. Shortly after 1860, Tubou I ordered the 200 inhabitants
166 of 'Ata to remove to the village of Ha'atu'a or Kolomaile in 'Eua, on
[648] account of islanders being taken away by kidnapping ships to work in
the mines of Chile, South America. 'Ata was too isolated to be protected
then, and on account of its position and lack of an anchorage it has not
again attracted a population.

133 (2) HUGA TOGA is 490 feet high. (3) HUGA HA'ABAI is
400 feet high. These sister-islands, north-west of Togatabu, contain
[135] deposits of guano but have no anchorage. Volcanic activity has long
ceased.

102
133
● 131



FALCON ISLAND.
Lat. 20° 19' S. Long. 175° 26' W.

133 wide, constantly steaming, and surrounded by deposits of sulphur. The prevailing South-East Trade Winds carried the ejected material to the north-west of the island. Water entered the crater-lake from the ocean, as the eastern wall of the crater was very low; the water in the lake was thickly coated with sulphur and had a vile taste. Already in 1928 the waves were breaking down the soft cliffs, and the rain had made deep gullies down the slopes. It is the opinion of scientists that occasional sinkings of the ocean-floor in the Tonga Deep, which sometimes cause earthquakes in New Zealand, at other times cause lava to be pumped up through the opening in Falcon Island, and this accounts for the periodical re-appearance of this island of soft ash and scoria. Since 1928 smoke has been seen at various times, but the island is being washed down again.

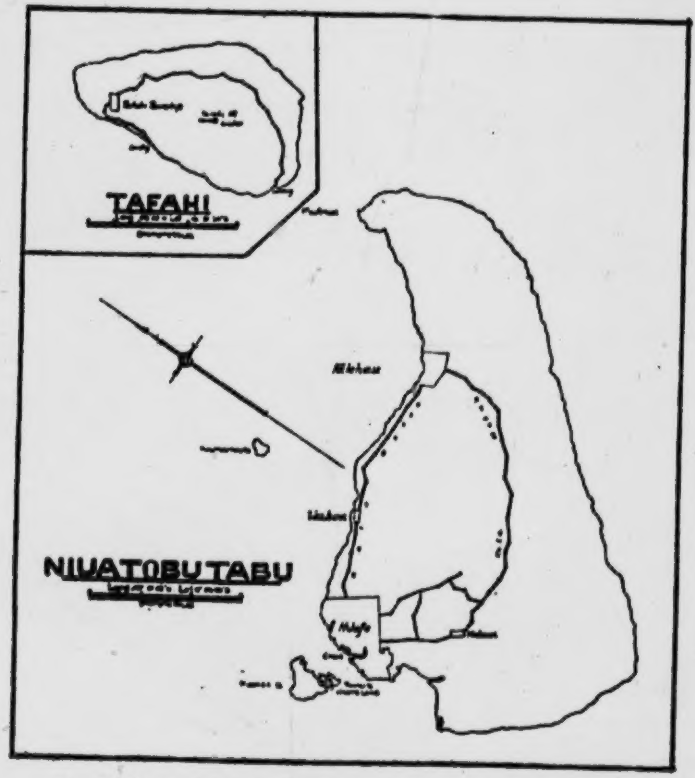
133 (5) TOFUA is a large island, 1,700 feet high, over five miles long
and about four miles wide. Its area is 21 square miles, of which over
131 three square miles is the area of the lake in the crater of the active volcano,
which the Tongans call Lofia. Smoke can often be seen issuing
133 from the summit of this volcano, but there is no record of any destruction
caused in recent years. Formerly the island was inhabited, the village
175 being called Manaka. In 1789, when Bligh and his loyal sailors, who
had been cast adrift from the "Bounty" between Nomuka and Tofua,
648 landed at Tofua to get water, they were attacked by the natives who
killed the quartermaster, Norton. The island has been deserted since
166 1854, when Tubou I ordered the inhabitants to leave because of the risk
of eruptions. Tofua and Kao are now used only for gardening by people
311 from the neighbouring small and crowded islands of Fotuha'a, Matuku
and Kotu; these people also occasionally hunt the wild pigs with which
136 Tofua is infested.
224

(6) KAO is an extinct volcanic island, a perfect cone like Egmont
133 in New Zealand and Fujiyama in Japan. The summit, called Tokonakao,
is 3,380 feet high, the highest point in the Tongan group, and easily
visible from Lifuka, 35 miles to the eastward. There was a village on
the island long ago, but on the shore, not on the summit as an old story
states. The narrow channel between Tofua and Kao is deep.

(7) LATE has a dormant volcano which has not erupted since
[131] 1854. Its area is over six square miles and height 1,700 feet; it has two
craters and a small lake. The peak is plainly visible for 50 miles on clear
days, and has always been a landmark for navigators. Late was formerly
[166] inhabited, but its people were taken to Huga, Vavau; it still
contains the remains of a fort with a stone wall. The island is very
fertile and densely-wooded.

[131] (8) FONUALEI is 40 miles N.W. of Vava'u and 600 feet high.
It was discovered by the Spaniard, Maurelle, in 1781; he named the
[175] island Amargura (Spanish for "bitterness"), because of his disappointment
in not getting food and water there. Though the volcano at Fonualei
[103] has been dormant for some years, in 1846 it threw ashes over such a
great area that the gardens in Vava'u were spoiled, and some ashes were
166 borne by the wind to ships as far as 500 miles away. The Government
now forbids habitation there and on the neighbouring small island, Toku.
Toku was formerly inhabited by refugees from Ha'amea, near Nafualu,
Tongatabu, where tribal fighting often took place. The people of Toku
had gardens on Fonualei, but they now live at Utulei, Vava'u.

102



(9) NIUA TOBUTABU is 167 miles north of Vava'u. The island 133
may be classed as of volcanic formation though there is no sign of any [131]
recent activity there. Niua Tobutabu is generally flat but rises to a hill
350 feet high in the centre. The area is nearly six square miles, and there [131]
are four villages with a population of 743. The island is subject to hurri-
canes, the last severe one having taken place on 26th December, 1930. [162]
The rhinoceros beetle which entered from Samoa threatened to destroy 731
the coconuts within recent years, but it has now been exterminated. [136]
There are two large stones on the island, called Fakafafa, said by a legend
to have been placed there by Maui. A spring with its small stream, 133
Niutoua, is an unusual sight in Tonga. The first Englishman who came
to Tonga, Captain Wallis, in 1767, named Niua Tobutabu Keppel and 175
Tafahi Boscawen, after two English admirals, and Keppel is the name 103
still often used by Europeans for the former island.

(10) TAFAHI is an extinct volcano with an elevation of 2,000 133
feet, a cone-shaped and very rocky island containing one small village.
Tafahi was the first part of the whole group seen by Europeans, the Dutch 175
voyagers, Schouten and Lemaire, in 1616. They called Tafahi Cocos
Island because of its trees, and Niua Tobutabu Traitors' Island because [103]
of the treacherous attack made on them by Ma'atu and his people. [648]

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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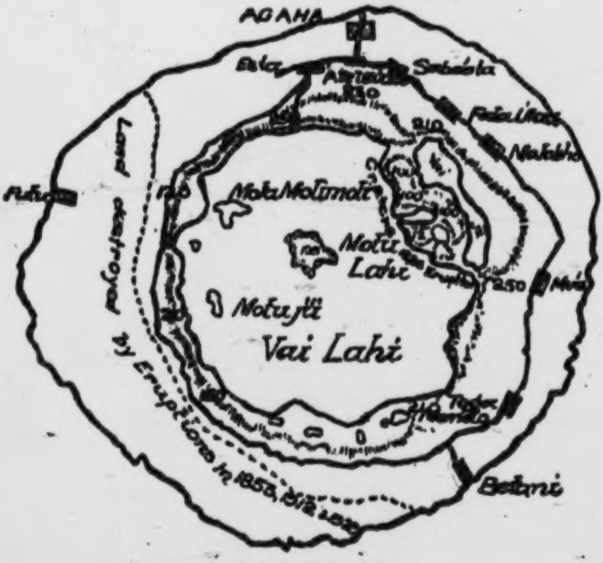

NIUA FO'OU.
LAT. 15° 36′ S. LONG. 175° 38′ W.

131 (11) NIUA FO'OU is the most remote island of the group, being much closer to Samoa and Fiji than to Togatabu. It is 109 miles W.N.W. [133 of Niua Tobutabu and 211 miles N.W. of Vava'u. Niua Fo'ou is almost circular and is 19 square miles in extent, including the lakes which cover six square miles. It rises to 588 feet and has a dangerous, dormant 133 volcano whose more recent eruptions have occurred in 1853 (when 25 731 people were killed), in 1867, 1886, 1912 and 1929. The village of Ahau was destroyed in 1853 and Futu in 1929, and both sites have been aban- [166 doned.

The last eruption is typical. On 25th July, 1929, a line of small craters opened up across the island on the western side, from the south-west coast to the north-west; these craters were so close that they formed almost a continuous line. Lava flowed down the western slopes to the sea, destroying nearly every building in Futu, and covering 2,000 acres which will be useless for cultivation for many years. The harbour at Futu is now cut off by the great lava-field. The people of Futu barely [166 escaped with their lives and lost all their goods. They have since built a new village not far from Agaha named 'Alele'uta.

133 There are little islands in the lakes of Niua Fo'ou and little craters in those islands also. In some places in the lakes hot springs have been found, and in others the depth cannot be ascertained.

000 American and New Zealand astronomers observed the total eclipse of the sun at Niua Fo'ou on 22nd October, 1930.

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

Disastrous hurricanes frequently occur, and the island has been 731
ravaged as recently as December, 1930, February, 1931, and March, 1932.
During the hurricane season Niua Fo'ou is not visited by small craft. [132]
Though the island has been so repeatedly devastated by eruptions and
storms, and its condition seems to be more dangerous than that, for [166]
instance, of the uninhabited large island of Tofua, still there is no intention
of abandoning it for a safer home closer to the main islands of the group.

Its present population is 1,291. The inhabitants are a distinct 162
type, with local variations of the Tongan language due to ancient contact
with Samoa and Uvea, but more intercourse with the rest of the Tongan 197
group is causing these old words to fall into comparative disuse.

The "Tin-can Mail" is Niua Fo'ou's claim to distinction. As the 205
harbour at Agaha is inconvenient, and the sea is generally too rough for
canoes, the mail is taken by swimmers to the steamer which passes from
Samoa to Fiji. The outgoing mail is generally wrapped in oiled paper [415]
and tied to sticks, and the inward mail is brought back from the steamer
in a sealed tin-can.

THE CHIEF CORAL ISLANDS, WITH SCENIC AND HISTORIC PLACES.

133

'EUA. This island, which 131 ● ←
is of great age geologically,
reaches a height of 1,078 feet,
and has an area of 33 square
miles. Although it is as large 162
as Vava'u and contains fertile 134
soil in abundance, its population ←
of 348 is most disproportionate.
Its inadequate harbour at 'Ohonua and the some- 162
times dangerous channel be- 166
tween the island and Togatabu, ←
though disadvantageous to the
progress of 'Eua, do not really 102
explain the decline in its popu- 361
lation; this is due rather to 133
the proximity of Nuku'alofa →
with its attractions. Considering that many small islands
in Ha'abai support numerous 311 ←
taxpayers who have no allotments, the neglect of 'Eua is
regrettable.

'Eua was called Middelburg by its discoverer, Tas- 103
man, and Cook had a high 175
opinion of its beauty and fer- ←
tility. This island is unique
in several respects. It has 133
several small creeks which rise 136
from springs in the hillsides and ←
descend to the western shore;

English Road
'EUA

[TEXT CONTINUED ON PAGE 79]

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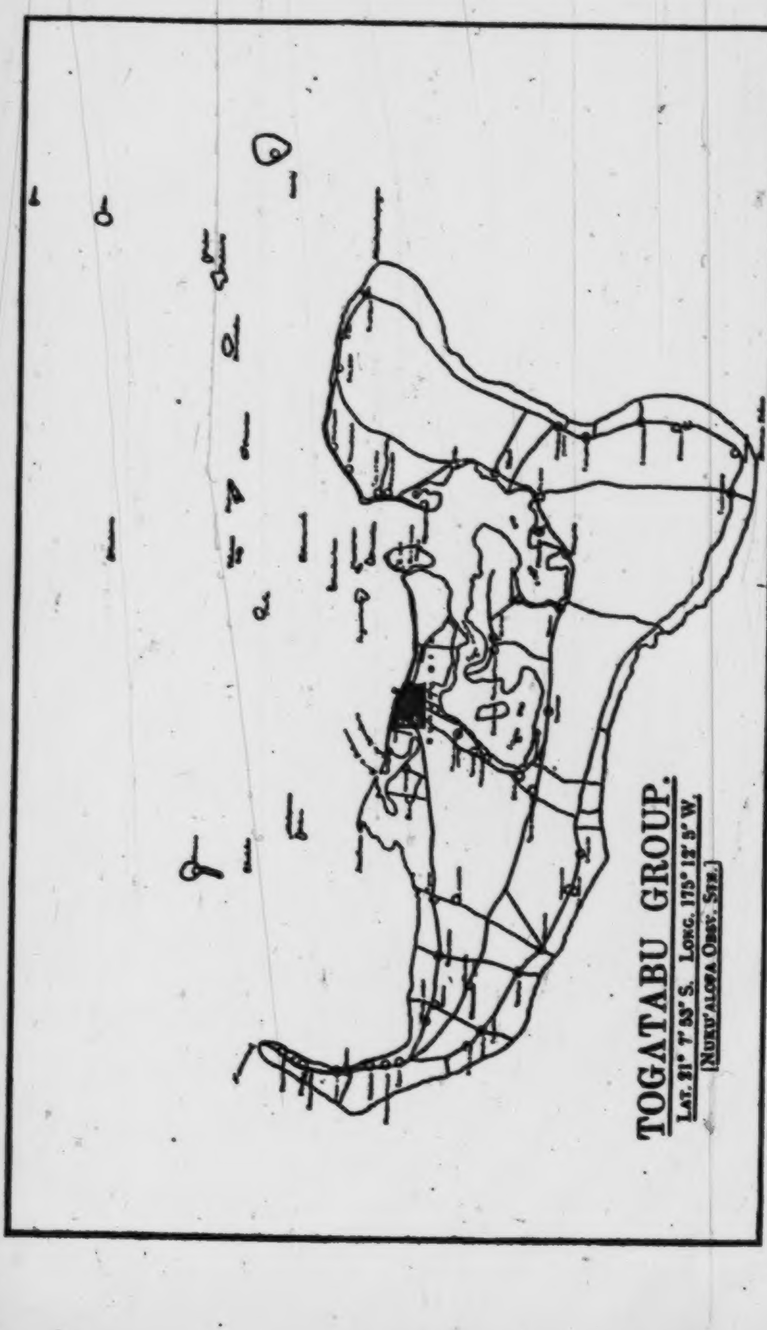

TOGATABU GROUP.

LAT. 21° 7′ 53″ S. LONG. 175° 12′ 5″ W.

[NUKU'ALOFA OBSV. STN.]

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and mobs of untended horses roam through the island. It contains varied scenery, valleys, and precipitous cliffs lining the eastern coast. 133 [136]

TOGATABU. This name (Sacred Tonga), as well as the others used by the people (Great Tonga and Chiefly Tonga), attests the importance of the largest island in the minds of generations of Tongans. From the foundation of Tonga to the present it has been the residence of the kings and the centre of religious and social life, and modern investigation has confirmed the native tradition that Togatabu was settled before Ha'abai and Vava'u. The island is 99 square miles in extent, with its extreme length 18½ miles and greatest breadth 9 miles. The southern coast is rather higher than the northern, where the capital, Nuku'alofa, is situated opposite the only openings in the reef which surrounds the island; but Togatabu generally is low, except in the east where the land rises to 270 feet. There are three main roads traversing the island from west to east and several cross-roads. The present population is 12,357, of whom 11,660 are pure Tongans. 361 [103] [174] 131 133 361 491 162

Nuku'alofa is the capital, the residence of the sovereign, and the centre of government and trade for the whole group. The Palace and Royal Chapel are conspicuous buildings; and the royal dais in the chapel is finely carved. The tombs of the present line of kings are at Mala'e-kula, in the centre of the town. Behind the British Consulate is a hill (Zion), the site of the old fort described by Mariner. 633 368 [764]

Mu'a, which consists of two villages, Tatakamotoga and Labaha, was the ancient capital; the kings of the Tu'i Toga line after Tu'itatui resided at Labaha, as also did the Tu'i Ha'atakalaua, and the southern village of Tatakamotoga belonged to the Tu'i Kanokubolu. In Mu'a there was also a renowned enclosure, Fanakava, which was a sanctuary for refugees from justice. The most remarkable feature of the Mu'a district is the series of 28 tombs (lagi) of the ancient kings. Each of these is a rectangular structure, covering as much as three-fourths of an acre, with from three to five terraces in pyramidal form, built of blocks of stone the largest of which weigh 30 tons each. Many of these tombs are well-preserved and easily accessible, especially the Baebae of Tele'a, whose smooth surfaces and L-shaped corner-stones have won the admiration of experts. Such striking examples of the skill of ancient Tongan stonemasons afford one of the finest sights in the South Seas. 361 [643] [696] 764 [368]

At the extreme east of the island, at Heketa near Niutoua, there is situated the famous trilithon known as the Ha'amoga-'a-Maui. This was built by the Tu'i Toga, Tu'itatui, about the year 1200, probably as a gateway. The upright stones are 17 feet high, and the cross-piece is 19 feet in length. Nearby are the stone where Tu'itatui sat, the Maka Fakinaga, and two tombs from the same period. 349 172 [764]

The remains of "Captain Cook's tree," called Malumalu 'o Fulilagi by the people, may be seen at Alaki. It was here that Cook was entertained in 1777 when he visited the Tu'i Toga and saw the presentation of first-fruits. 137 648

Stalactite caves near Haveluliku on the southern coast, like those found in other parts of Tonga, seem to have been used for burials in ancient times. 133 764

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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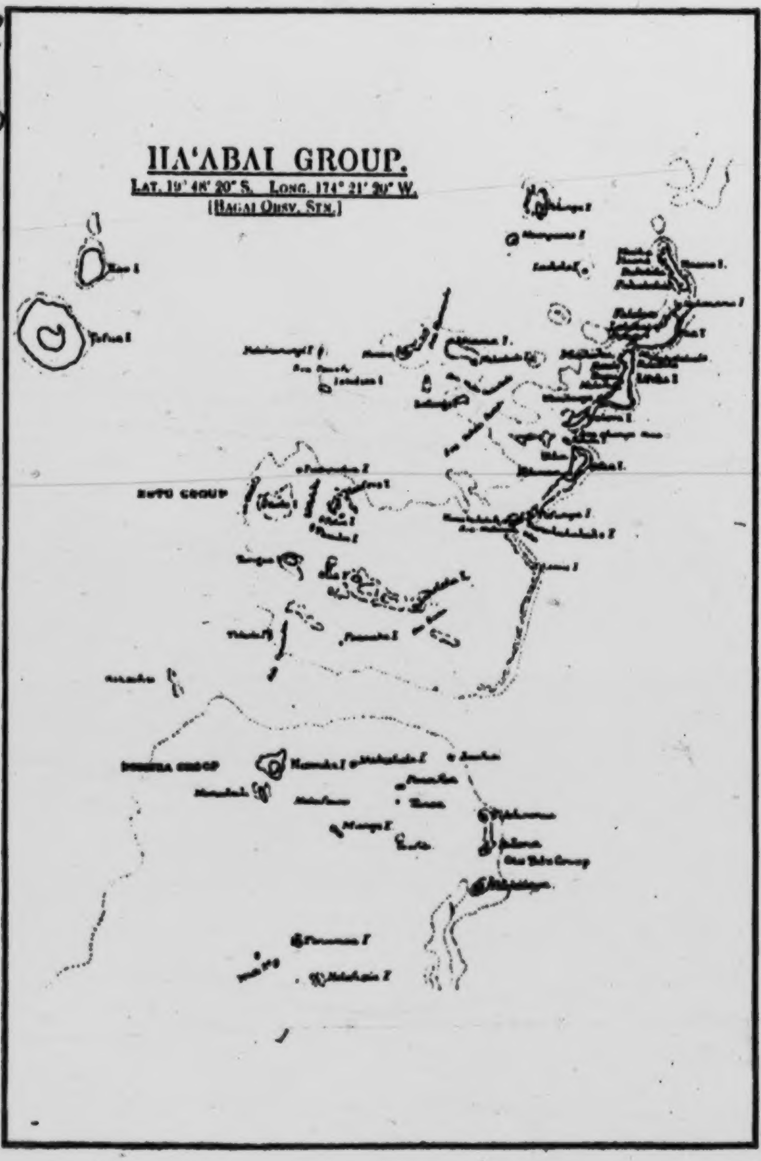
HA'ABAI GROUP.
LAT. 19° 48' 20" S. LONG. 174° 21' 20" W.
(HAPAI OBSV. STN.)
Kao I.
Tofua I.

Ha'ateiho is the place where three London Missionary Society 648
missionaries were killed in 1799. At Bea may be seen the spot where [797]
Captain Croker was killed and three naval guns were captured in 1840.

There is a good example of an old fort in fair preservation at Hule, 712
near Nukunuku. The most remarkable of the numerous trenches of the
island is known as the Keli-'a-Belehake, which extends from Vaotu'u to [173]
Nukunuku, Te'ekiu, Masilamea, and back to the southern coast at Fahefa;
tradition states that this was actually dug in a single night during a war
between the men of Hahake and those of Hihifo led by Vaha'i, at some
undetermined time probably in the early 19th century. The name of a 103
hamlet, 'Umutagata, also in the western district, recalls a rare instance 266
of human cremation and cannibalism.

764
At Kolovai there is the enclosure where the former Tu'i Kanokubolu
were invested with office; a piece of the koka tree under which these 643
kings sat has been placed in the modern coronation chair at Nuku'alofa. [764]
The tombs of these kings are also at Kolovai. This village is well-known
to tourists as a sanctuary for great numbers of flying-foxes. 136

Houma, on the south-west coast, is noted for the blow-holes which 133
extend along the cliffs for a considerable distance.

In the extreme north-west of the island, at Ha'atafu, a monument 648
stands to mark the landing-place of the first Wesleyan missionaries (1826). [211]
Tasman in 1643 and Cook in 1773 also landed nearby.

Navigation lights now stand at Ha'atafu, Nuku'alofa and Malinoa, 502
an island north of Nuku'alofa. The quarantine station is situated at
Makaha'a, another island off Nuku'alofa. 504

Ancient stone-quarries are to be seen at Motutabu and Bagaimotu, 316
small islands not far from Nuku'alofa. It seems more than probable
that the stones used in the great tombs (lagi) at Mu'a and elsewhere were 174
cut at these places, and certainly not at Uvea and other distant islands
to which old native traditions refer.

HA'ABAI. It is considered that this name is derived from Savai'i, 103
the island in Samoa from which the ancient Tongans probably came.
Ha'abai is a scattered archipelago of small islands, the total area of which 133
is less than that of 'Eua, if the uninhabited volcanic islands of Tofua and
Kao are excluded. Yet these islets support a population of 6,410, most 131
of whom have small tax-allotments or none at all, and despite the difficulties 162
of getting a livelihood—difficulties which hurricanes and droughts 311
have increased in recent years—the number of people who have gone to
take up land in Togatabu and Vava'u is not considerable. The people 505
of Ha'abai have always been renowned as skilful navigators and fishermen. 226

The Governor of Ha'abai resides at Bagai, Lifuka, which was also
the boyhood home and always the favourite residence of Tubou I. Cook 634
was entertained at a great festival and a plot was made against his life
on this island in 1777. Mariner's vessel, the "Port-au-Prince," was also 175
attacked here, and the cemetery of the murdered sailors is at Koulo, 648
Lifuka.

Uoleva, now uninhabited, has a remarkable number of pigeon-mounds 172
used by chiefs in ancient times, also an old sunken road of unknown
use extending through the island.

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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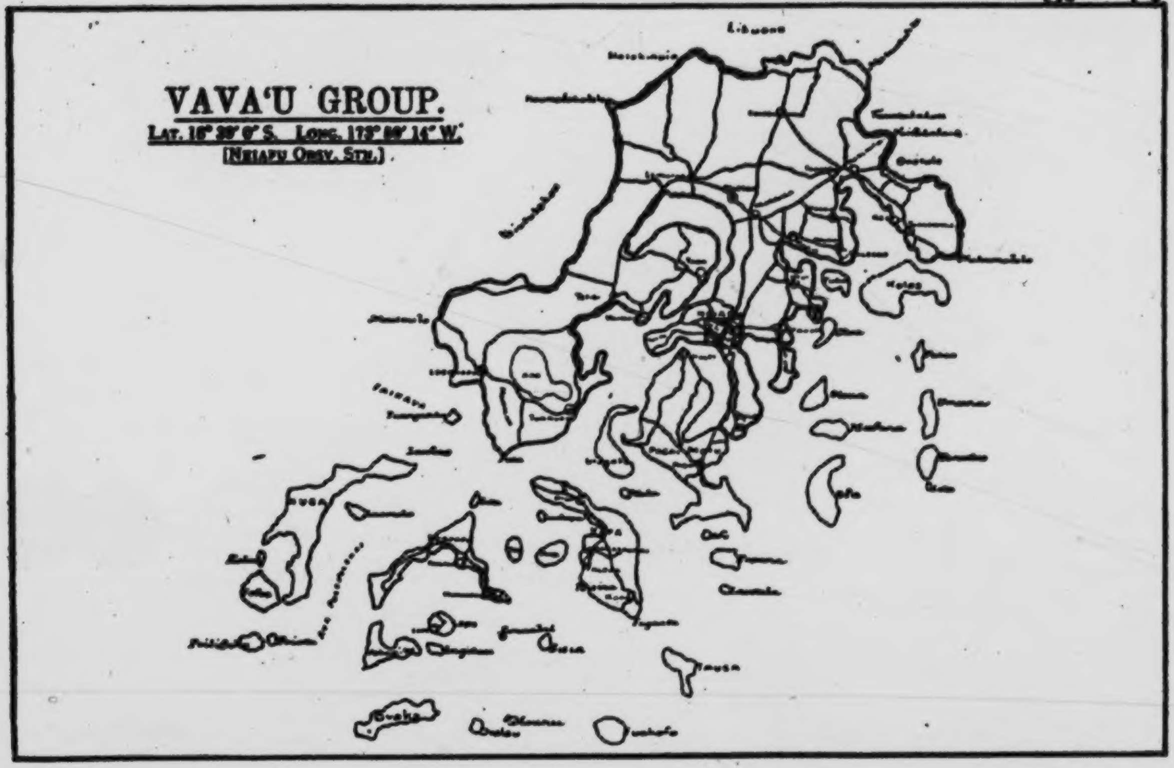
VAVA'U GROUP.
Lat. 18° 39' 0" S. Long. 173° 59' 14" W.
(Neiafu Obsv. Stn.)

82 *Vava'u Group.*

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APPENDIX E.

A COMPLETE LIST OF THE ISLANDS AND VILLAGES OF TONGA.

NOTE. All islands are classed as of coral formation, except those marked (V) denoting volcanic origin.

The heights of the low islands are approximate only, as indicated from charts.

Particulars of population are from the Police Census of 27th April, 1931.

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
(1) 'ATA (V) [PYLSTAART].	1,165	560			
(2) SOUTHERN GROUP: TOGATABU AND 'EUA.					
'Eua	1,078	21,604	5		**348**
		(33.7 sq.m.)	'Ohonua	Government	193
			Houma	Royal Estate	37
			Bagai	Ve'ehala	31
			Kolomaile (Ha'atua)	Government	55
			Tufuvai	Government	32
Togatabu	270	63,516	60		**12,357**
		(99.2 sq.m.)	22 in the Eastern Division:		
			Niutoua	Government	141
			Afa	Government	64
			Kologa	Nuku	330
			Manuka	Government	38

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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361
162
423
131

APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
SOUTHERN GROUP: TOGATABU (continued).			**Navutoka**	**Tugi**	**161**
			Talafo'ou and Makauga	**Lauaki Jioeli Bagia**	**235**
			Nukuleka	**Jioeli Bagia**	**103**
			Hoi	**Jioeli Bagia**	**125**
			Talasiu	**Tu'ilakeba**	**50**
			Mu'a { Labaha	**Jioeli Bagia**	**505**
			Mu'a { Tatakamotoga	**Tugi**	**575**
			Alakifonua	**Tu'ibelehake**	**164**
			Hologa	**Government**	**147**
			Malaho	**Luani**	**103**
			Fua'amotu	**Tugi**	**270**
			Nakolo	**Luani**	**89**
			Ha'asini and Hamula	**Government Jioeli Bagia**	**171**
			Lavegatoga	**Tugi**	**31**
			Fatumu	**Tugi**	**108**
			Haveluliku	**Tugi**	**29**
			26 in the Central Division :		
			Vaini	**Ma'afu**	**254**
			Logoteme	**Veikune**	**113**
			Folaha	**Government**	**210**
			Nukuhetulu	**Government**	**94**
			Veitogo	**Government**	**224**
			Ha'ateiho	**Tu'iha'ateiho**	**159**
			Bea	**Lavaka**	**167**

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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162
423
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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
SOUTHERN GROUP: TOGATABU (continued).			Tokomololo	Ma'afu	
			and Fonogahina	Lasike	165
			Koloua	Government	
			and Tofoa	Government	76
			Haveluloto	Fielakeba	85
			Nuku'alofa { Kolofo'ou	Government	1,555
			Nuku'alofa { Kolomotu'a	Government	1,791
			Ma'ofaga	Fakafanua	633
			Hofoa	Government	129
			Buke	Fohe	50
			Fatai	Government	
			and Matafonua	Tu'ivakano	195
			Nukunuku	Tu'ivakano	382
			Vaotu'u	Tu'ivakano	175
			Lakeba	Lasike	92
			Houma	Vaea	427
			Ha'akame	Government	119
			Ha'alalo	Crown Prince	
			and Utulau	Crown Prince	156
			12 in the Western Division :		
			Matahau	Tu'ivakano	110
			Fahefa	Ve'ehala	
			and Ha'a'utu	Government	
			and Kala'au	Government	167
			Te'ekiu	Motu'abuaka	106
			Masilamea	Government	76

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
SOUTHERN GROUP: TOGATABU (continued).			Fo'ui	Vaha'i	187
			Ha'avakatolo	'Ahome'e	139
			Kolovai	Ata	334
			'Ahau	Govt. and Lasike	134
			Kanokubolu (Neiafu)	Royal Estate	162
			Ha'atafu	Government	100
Nukunukumotu		326	Sicsia	Government	26
'Eua Iki ('Eueiki)	180	260	'Eueiki	Government	76
Atata	93	128	Atata	Ata	50
Tufaka	61	4½			
Alakibeau	60	2			
Bolo'a	77	12			
Malinoa	51	2			
Fafa	72	23			
Velitoa (2)	59	5			
'Onevai	54	25			
'Onevao	57	6½			
Motutabu	74	33			
Makaha'a	65	9			
Monuafe		5			
Bagaimotu		33			
Manima	47	4			
'Oneata	87	14			
Mata'aho					
Kanatea		126			
Mo'ugatabu					
Gofonua					

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
SOUTHERN GROUP: TOGATABU (continued).					
'Atā		55			
Fukave		43			
Nuku		10			
Tau	30	5			
Toketoke					
Kalau	120	50			
(3) HUGA TOGA (V).	490	110			
HUGA HA'ABAI (V).	400	160			
(4) MIDDLE GROUP: HA'ABAI.					6,410
(A) VOLCANIC GROUP.					
Falcon Island (V) [Fonua Fo'ou]	365				
Tofua (V)	1,670	13,750 (21.4 sq.m.)			
Kao (V)	3,380	3,100 (4.8 sq.m.)			
(B) 'OTU TOLU GROUP.					
Telekitoga	53	110			
Telekiha'abai (Lalona)	67	70			
Telekivava'u	71	50			
(C) MU'OMU'A OR NOMUKA GROUP.					
Nomuka	166	1,763 (2.7 sq.m.)	Nomuka	Crown Prince	478

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
MU'OMU'A OR NOMUKA GROUP (continued).					
Mago	141	130	Mago	Royal Estate	63
Fonoifua	67	40	Fonoifua	Tu'iafitu	31
Nomuka Iki	147	167			
Mago Iki	68				
Fetokobuga	57				
Tonumea	138	30			
Nukufaiau	58	3			
Muifuiva	10	1			
Kelefesia	123	30			
Tano'a	57	3			
Nukutula	18	20			
(D) SOUTHERN HA'ABAI: LULUGA OR WESTERN GROUP.					
Ha'afeva	100	500	Ha'afeva	Tu'uhetoka	375
Kotu	120	40	Kotu	Government	110
Tugua	120	375	Tugua	Tu'iha'ateiho	228
'O'ua	140	240	'O'ua	Government	142
Matuku	100	83	Matuku	Tu'iha'ateiho	80
Butubutua	12	3			
Teauba	125	50			
Fetoa	125	40			
Kolo	50				
Kito	60	3			

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
SOUTHERN HA'ABAI: LULUGA OR WESTERN GROUP (continued).					
Foua	30	1			
Luanamo	75	6			
Fonuaika	65	5.			
Tokulu	15	3			
Kogaloto	20				
Fakahiku	65	3			
Bebea	75				
Ono Iki	125				
Fono'imaka	6				
Lekeleka	60	30			
(E) NORTHERN HA'ABAI: HAHAKE OR EASTERN GROUP.					
Lifuka	100	2,825	Bagai	Royal Estate	844
		(4.4 sq.m.)	Togaleleka (Hihifo)	Government	607
			Holobeka	Tu'iafitu	104
			Koulo (Ha'atakalaua)	Government	196
Foa	100	3,310	Lotofoa	Royal Estate	308
		(5.1 sq.m.)	Fagale'ouga	Niukabu	138
			Fotua (Alakifonua)	Tu'ibelehake	175
			Faleloa	Tuita	286
Ha'ano	100	1,626	Lotoha'ano	Tu'iha'agana	296
		(2.5 sq.m.)	Muitoa	Tu'iha'agana	120
			Bukotala (Kanakana)	Tu'iha'agana	198
			Fakakakai	Government	358

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
NORTHERN HA'ABAI: HAHAKE OR EASTERN GROUP (continued).					
'Uiha	100	1,326	'Uiha	Malubo	488
		(2.07 sq.m.)	Felemea	Government	257
Lofaga	150	360	Lofaga	Crown Prince	252
Fotuha'a	200	280	Fotuha'a	Government	126
Mo'uga'one	100	285	Mo'uga'one	Government	150
Niniva	85	122			
Ofolaga	90	220			
Buhi	20				
Luahoko	45	3			
Nukunamo	50	78			
Uoleva	100	741			
Luagahu	40	15			
Tatafa	90	78			
Tofoga	40				
Limu	40	10			
Uonuku Hahake	50	120			
Uonuku Hihifo	50	25			
Meama	105	5			
Nukubule	60	8			
Hakau'ata	60				
Fatumanogi	10				

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
(5) **NORTHERN GROUP:**					
VAVA'U OR HA'AFULUHAO.					**7,643**
'Uta Vava'u	670	22,179	22		
		(34.6 sq.m.)	Neiafu	Government	1,610
			Falaleu	Government	198
			Fugamisi	Government	73
			Toula	Government	104
			Makave	Tu'iafitu	156
			Utui	'Ahome'e	73
			Magia	Government	44
			Houma	Government	128
			Ha'akio	Government	111
			Ta'anea	Vaha'i	176
			Ha'alaufuli	Afu	344
			Tu'anekivale	Government	225
			Mataika	Government	217
			Feletoa	Fulivai	208
			Leimatu'a	Fotu	465
			Hologa	Royal Estate	241
			Taoa	Crown Prince	164
			Vaimalo	Government	103
			Tefisi and Ga'akau	Luani Fakafanua	208
			Logomabu	Veikune	208
			Tu'anuku	Finau Ulukalala	257
Ovaka	190	320	Ovaka	Government	186

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
NORTHERN GROUP: VAVA‘U OR HA‘APULUHAO (continued).					
Tauga	155	90	Tauga	Akau‘ola	110
Huga	245	1,160	Huga	Fulivai	228
Nuababu	210	660	Nuababu	Royal Estate	103
			Matamaka	Royal Estate	74
Labe	130	99	Labe	Government	26
Bagaimotu	290	2,188	Bagai	Royal Estate	250
		(3.4 sq.m.)	Utulei	Royal Estate	104
Utugake	290	230	Utugake	Tuita	170
			Ga‘unoho	Government	78
Kaba	345	1,475 (2.3 sq.m.)	Falevai and Vakataumai	Fakatulolo	192
			Otea	Government	173
			Kaba	Government	152
Koloa	160	555	Koloa and Holeva	Government	145
Okoa		85	Okoa	Tu‘ilakeba	124
‘Olo‘ua		120	‘Olo‘ua	Government	45
Ofu	110	310	Ofu	Tu‘ilakeba	170
Late (V)	1,700	4,300 (6.7 sq.m.)			
Maninita	55	7			
Taula	55	10			
Luaafuleheu	60	15			
Luahiabo	55	12			
Luaivaha	65	1			

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate. (Tofia).*	*Population.*
NORTHERN GROUP: VAVA'U OR HA'AFULUHAO (continued).					
Fua'amotu	135	60			
Fonua'one'one	75	25			
Fatumaga	85				
'Eueiki	175	45			
'Euakafa	270	128			
Mu'omu'a	135	10			
Fagasito	60				
Ovalau	110	23			
Mo'unu	3	2			
Bau	75	3			
Ta'uta	135	3			
Gau	90	8			
Luatafito	40	2			
Fonuafo'ou	25				
Fonua'uga	25				
Katafaga	96				
Sisia	110	23½			
Fonualei	80	3			
Fofoa	255	184			
Kalau	195	12			
Luamoko	230	34			
Luafatu	110	4			
Vaka'eitu	200	152			
Lagitau	130	20			
Tu'ugasika	225	17			

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
NORTHERN GROUP: VAVA'U OR HA'AFULUHAO (continued).					
Foelifuka	125	64			
Foeata	125	25			
Lotuma	80	2			
Ava	165	128			
Luakaba	120	12			
Ota	200	52			
Nuku	60	8			
Faioa	140	65			
Tulie					
Kiato		4			
Mafana	135	128			
Umuna	145	128			
Kenutu	135	107			
Lolo	30	6			
Toku	86	150			
Fonualei (V)	600	465			
(6) NIUA TOBUTABU (V) [KEPPEL].	350	3,697 (5.7 sq.m.)			790
			Hihifo and Matavai	Ma'atu	470
			Vaiboa	Tagiba and Ma'atu	181
			Falehau	Royal Estate	92
Hugaga Tāvili Hakautu'utu'u		139			

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APPENDIX E (CONTINUED).

Island.	*Height (in ft.).*	*Area (in acres).*	*Villages.*	*Estate (Tofia).*	*Population.*
NIUATOBUTABU (continued).					
Tafahi (V) [Boscawen]	2,000	822	Tafahi	Government	47
(7) NIUA FO'OU (V).	588	12,422	9		1,291
		(19.4 sq.m.)	Agaha	Fotofili and Fujitu'a	213
			Mu'a	Fotofili	129
			Togamama'o	Government	141
			Saba'ata	Fujitu'a	127
			Mata'aho	Royal Estate	105
			Fata'ulua	Government	146
			Betani	Government	128
			Esia	Government	140
			Futu (now 'Alele'uta)	Tuita	162

87: Wood M,Y-4,5 (no date) 1932 OU9 Tonga OU9

APPENDIX F.

TOTALS OF AREA AND POPULATION.

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131
161

		Area (sq. miles)	Population
(1)	'Ata (Pylstaart)	0.9	-
(2)	Southern Group : Togatabu, etc.	101.1	12,357
	'Eua	33.7	348
(3)	Huga Toga and Huga Ha'abai	0.4	-
(4)	Middle Group : Ha'abai	50.1	6,410
(5)	Northern Group : Vava'u	56.1	7,643
(6)	Niua Tobutabu and Tafahi	7.2	790
(7)	Niua Fo'ou	19.4	1,291
		268.9	28,839

CHAPTER II

PHYSICAL ENVIRONMENT

Geographical Setting

131 The Kingdom of Tonga is situated in the southwest Pacific Ocean some 450 miles (720 kilometers) east-southeast of Suva, Fiji and 1,200 miles (1930 kilometers) north-northeast of Auckland, New Zealand (Figure 5). The archipelago consists of approximately 150 small islands scattered over 20,000 square miles (52,000 square kilometers) of ocean. The islands, 36 of which are presently inhabited, range in size from small reef islets to the island of Tongatapu with an area of 99 square miles (257 square kilometers). The total land area for the entire archipelago is approximately 270 square miles (700 square kilometers). 361 The capital city and main seaport of Nuku'alofa is situated on the north coast of the main island of Tongatapu, on which more than 60 percent of the Kingdom's population live.

Geology and Physiography

133 The Tongan archipelago is among the arcuate islands that are related geologically to the Asian continental margins, rather than to the Pacific Basin to the east. The islands are situated near the outer edge of what is considered to be the most unstable portion of the earth's

[TEXT CONTINUED ON PAGE 21]

88: Thaman K-5 (1967-1973) 1978 OU9 Tonga OU9
Tongatapu

102
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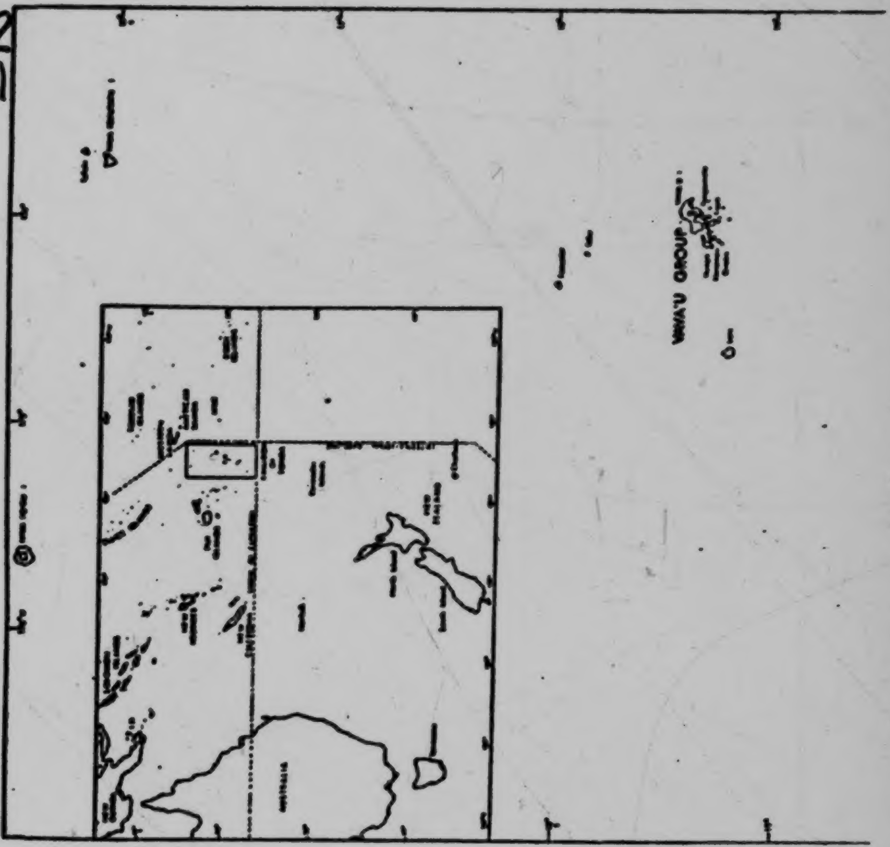
VAVA'U GROUP

[pr 20-A]

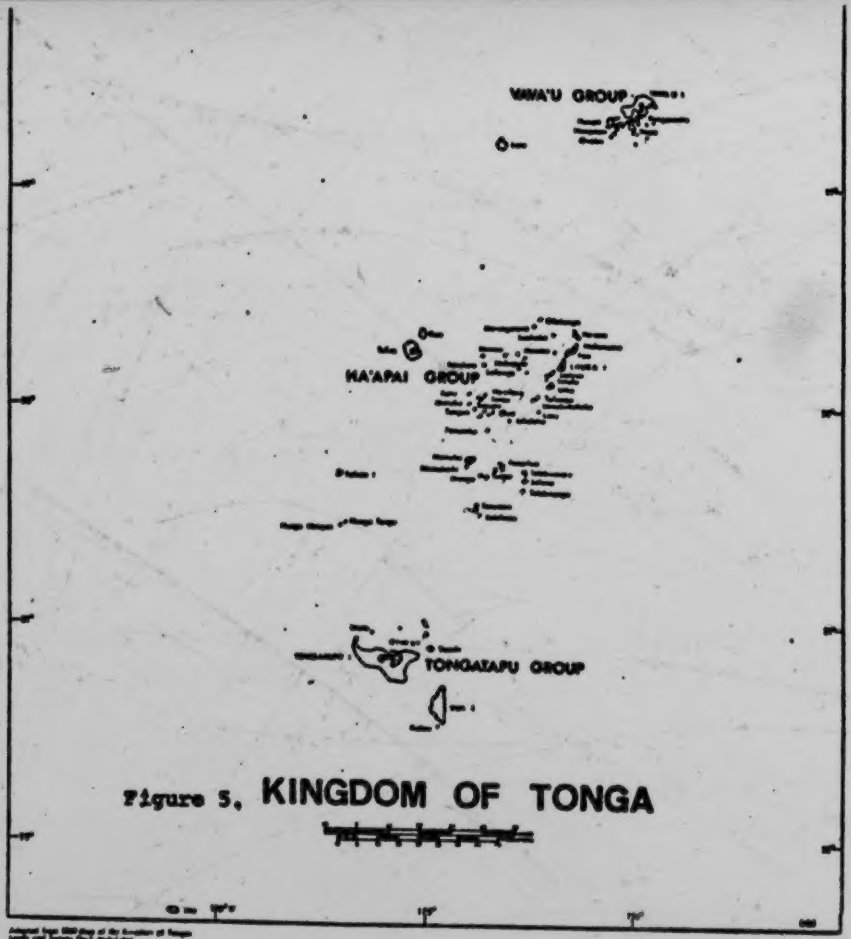
VAVA'U GROUP
HA'APAI GROUP
TONGATAPU GROUP

Figure 5, KINGDOM OF TONGA

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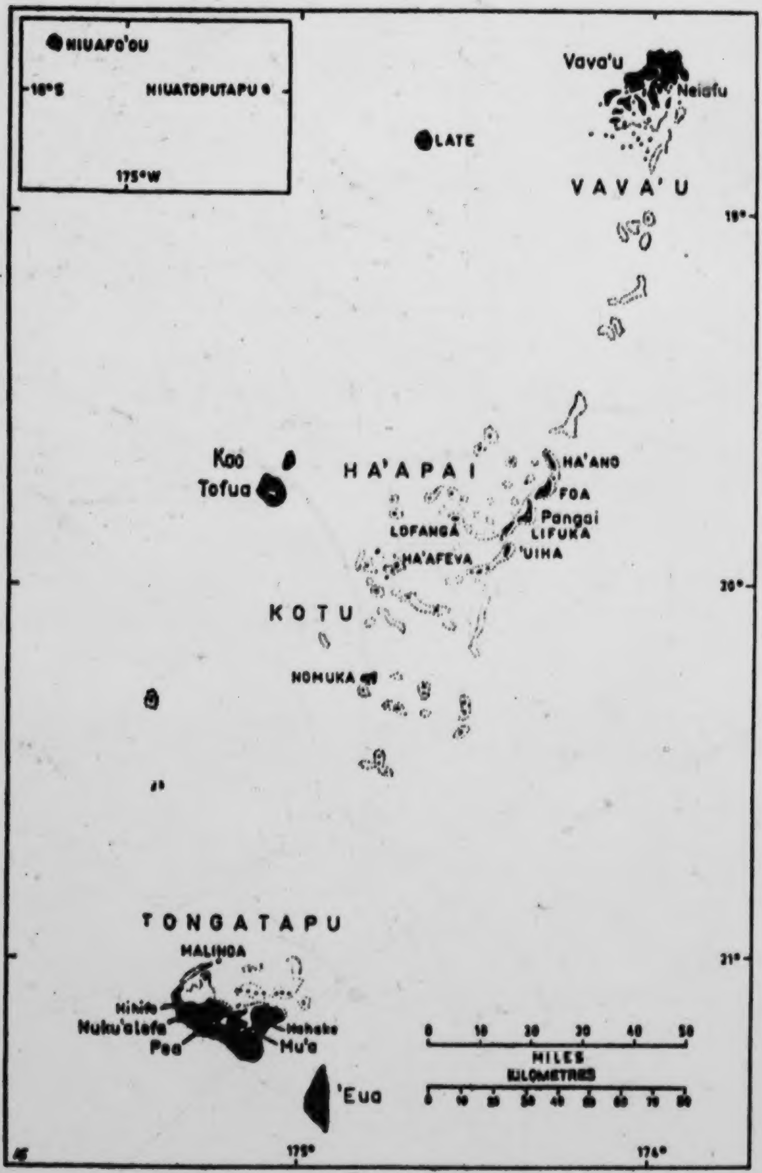
89: Wood M,Y-4,5 (1924-1937) 1975
OU9 Tonga OU9

102
131


NIUAFO'OU
16°S
NIUATOPUTAPU
175°W
Vava'u
Neiafu
LATE
VAVA'U
19°
Kao
Tofua
HA'APAI
HA'ANO
FOA
Pangai
LIFUKA
LOFANGA
HA'AFEVA
'UIHA
20°
KOTU
NOMUKA
TONGATAPU
MALINOA
Hihifo
Nuku'alofa
Pea
Nahake
Mu'a
'Eua
21°
0 10 20 30 40 50
MILES
KILOMETRES
0 10 20 30 40 50 60 70 80
175°
174°

Tonga

XVI

89: Wood M,Y-4,5 (1924-1937) 1975
OU9 Tonga OU9

TONGA

Chapter I.

TONGA IN PRE-CHRISTIAN TIMES

The Tongan people have preserved a rudimentary knowledge of their early 173
history. This was transmitted to successive generations through poems, expressed
in singing and festival dancing. With pride of race and tenacious memories the
Tongans were able to recall the deeds of kings and other great chiefs that were
celebrated in these poems.

The first of the line of sacred kings, the Tu'i Tonga, ruled about 950 A.D., and the names of all the kings in this line, thirty-eight in number, were orally recorded. For almost a thousand years Tongans served their chiefs, cultivated their soil, skilfully sailed the surrounding seas, and enjoyed the possession of their small islands undisturbed by contact with the outside world.

Tonga is the southern point of the triangle, Fiji-Samoa-Tonga. With a total 131
area of only 269 square miles, this island-cluster seems to have had a stable [161]
population of from 18,000 to 25,000 in pre-European times. The three main
sections are Tongatapu (with the capital, Nuku'alofa) in the south, Ha'apai (a
scattered group of which the main island is Lifuka), and Vava'u (with its chief
town, Neiafu) in the north. Tongatapu, or Sacred Tonga, was so called because [103]
it was regarded as the residence of the great gods.(1) The distance from Tongatapu
to Vava'u is 170 miles. The islands run in two lines. The eastern line is of 133
coral formation, nearly all being low islands. The largest island in the whole
group, Tongatapu, 99 square miles, rises to only 270 feet. The western line
consists of volcanic islands, mostly extinct and with few inhabitants now, except
the far northerly islands of Niua Toputapu and Niua Fo'ou.

Tongans are a branch of the light-brown Polynesian race; affinities of 144
language and similar physical characteristics show their close relationship with
Samoans, Maoris, Hawaiians, and the inhabitants of the many groups in Eastern
Polynesia. "The greatest ocean pathfinders the world has known"(2), the 174
Polynesians are believed to have come from Asia, "pushed off the mainland of
Asia".(3) Approximate dates and the paths of these migrations are still the subject
of inquiry and much debate(4).

Tongan traditions firmly place Samoa as the land from which their ancestors 173
finally migrated to their present home. These stories refer to the islands of
Manu'a in the east of the Samoan group as the residence of the ancient chiefs
who claimed descent from the sky-gods, the Tangaloa. Furthermore, it was from
Manu'a that Maui, the mythical hero from the under-world, was said to have
obtained the fish-hook with which he pulled up Tongatapu and other low islands
in the Tongan group from the ocean-bed. The first Tu'i Tonga, 'Ahoeitu, was

INTEGRATING TOURISM WITH OTHER INDUSTRIES IN TONGA

CHARLES F. URBANOWICZ

Tonga, with an area of 289 square miles, is 131
approximately 550 miles southwest of the islands of
Samoa and approximately 450 miles southeast of the
islands of Fiji, in the "heart" of Polynesia. The principal
island of the group is Tongatapu (100 square miles).
The estimated population of the Kingdom is slightly 161
over 100,000 (1975). Most Tongans speak English as
a second language. The country is an independent Kingdom 191
of the British Commonwealth of Nations.[1] A 642

TOURISM AND THE TONGAN ECONOMY

Tongans are primarily exporters of agricultural 179
commodities. Tourist development is still in the 457
relatively early stages. Given certain conditions, tourism
could be considered a major industry of the future for [439]
Tongans. The Kingdom has taken the position that the
potential of the tourist industry is much greater than
any other aspect of the economy.[2] B This "potential" may
well be debated, for without adequate design-for-tourism,
the impact of tourism could be disastrous.

Tourists arrive in Tonga either by private yacht, by cruise ships which make one or two-day stops,

A, B, [For footnotes, see p. 93-A--Analyst]

91: Urbanowicz E-4,5 (1970-1971) 1977
OU9 Tonga OU9

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Tourism in Tonga: Troubled Times

CHARLES F. URBANOWICZ

The Kingdom of Tonga lies in the heart of fabled Polynesia, approximately 131
550 miles southwest of Samoa and 450 miles southeast of Fiji. The
tiny kingdom encompasses approximately 289 square miles and supports [161]
an estimated (1975) population of 100,105—an average density of more
than 346 persons per square mile. However, the actual usable land
available for settlement is only 190 square miles, giving a true population
density of 532 persons per square mile. The population is not evenly [162]
distributed and the largest island of the group, Tongatapu (100 square
miles with a population of 52,000) is the economic center for the
archipelago. This island has also been the historic residence of the [633]
aboriginal (Royal) leaders, and Nuku'alofa—the largest city, the capital,
and the main tourist target—is located there.

Formerly a British protectorate, Tonga achieved independence in 1970 642
and entered the British Commonwealth of Nations. The Constitutional
Monarchy dates to 1875 and the current monarch, His Majesty King [643]
Taufa'ahau Tupou IV, acceded to the throne in 1965. Tongan is the
official language, English is the second language and most Tongans are 197
bilingual. The population is also ethnically uniform: 98 percent of the 191
population are Tongans, and all are stalwart Christians. The 1966 census 162
listed 77,429 inhabitants, only 61 of whom failed to declare a religious 771
affiliation.

Tourism is nascent in Tonga, but the number of visitors is increasing 457
annually due to extensive overseas promotions that stress, in colorful
brochures, the beauty of "unspoiled" Polynesia, where English is spoken
and where there is a "real live King (and Queen)." Although Tonga is the
last surviving Polynesian Kingdom, it is far from being the "storybook"
land of the culture brokers. It is an overpopulated and underdeveloped
tiny nation, struggling to maintain its cultural integrity in the face of
twentieth-century changes. There are serious internal economic problems
in Tonga, for which tourism might be the panacea. This case study [121]

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

000 35. NOTES *on the* GEOLOGY *of the* TONGA ISLANDS. By J. J. LISTER, Esq., M.A. (Read June 24, 1891.)

[Communicated by J. E. MARR, Esq., M.A., F.R.S., Sec. G.S.]

[PLATE XXIII.]

CONTENTS.

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I. INTRODUCTION 590
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III. GEOLOGICAL CHARACTERS OF THE GROUP.
(*a*) The Volcanic Islands 591
(*b*) Islands formed of Sedimentary Volcanic Material 595
(*c*) Islands formed entirely of Limestone 606
IV. CONCLUSION 616

I. INTRODUCTION.

121 VERY little of a detailed character has, so far as I am aware, been published on the geology of the Tonga Islands.

Prof. Dana makes a brief mention of some of the islands in 'Coral and Coral Islands'[*]; and in the edition of 'Coral Reefs' published in 1874 Darwin gave a summary of what was known of the group[†].

114 I spent several months in Tonga in 1889 and 1890, and had opportunities of visiting some of the islands in H.M.S. 'Egeria,' which was engaged, for part of the time, in making a survey. Such observations as I made on the geology of the group are embodied in the following notes.

126
114 I am indebted to Mr. Alfred Harker, M.A., F.G.S., who has examined the volcanic rocks which I obtained[‡], and also to Dr. John Murray, who has looked over sections of the calcareous rocks of Eua.

II. TOPOGRAPHY OF THE GROUP.

131 The Tonga or Friendly Islands are situated in the Pacific Ocean between 18° and 22° 30′ lat. S., and on either side of the 175th degree long. W. Tongatabu lies a little over 1000 miles to the N.N.E. of Auckland in New Zealand. The large islands of Fiji are about 400 miles to the W.N.W., and those of Samoa about 300 miles to the N.N.E.

The greater number of islands fall into three main groups. The [103] northernmost is Vavau, which consists of one moderately large island (about 13 miles in its longest diameter), giving its name to

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[*] 2nd ed., pp. 288 & 289.

[†] P. 212 and elsewhere, 3rd ed. (1889).

[113] [‡] Mr. Harker has published notes on these specimens in the Geol. Mag. for June, 1891.

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

● 131 the group, and a number of islets lying to the south and south-west
(103) of it. Rather more than fifty miles to the south is the Hapai
group, containing the high volcanic islands of Tofua and Kao on the
(133) west; on the east a chain of low, flat, coral islets; the Kotu group
in the centre; and on the south a number of isolated islands, the
largest of which is Nomuka. Some fifty miles to the south and
somewhat to the west of Nomuka lies Tongatabu, the largest island
of the group, measuring over twenty miles in its longest diameter.
(133) A channel about ten miles broad separates Tongatabu from the
small and high island of Eua to the south-east, while eighty-five
miles to the south-west lies the little island called Ata by the
natives, the Pylstaart of the charts, the most southerly outlier
of the Tonga Islands. (See Map on p. 594 and Pl. XXIII.)

Lying far to the north of the islands mentioned are Niuafou (=Good Hope, or Proby Island), Keppel, and Boscawen Islands, which, though politically belonging to Tonga, occupy an intermediate position between this group, Fiji, and Samoa.

III. GEOLOGICAL CHARACTERS OF THE GROUP.

133 According to the characters which they present, the Tonga Islands may be arranged in three divisions, viz.:—(*a*) purely volcanic islands; (*b*) islands formed of volcanic materials laid out beneath the sea, and since elevated, with or without a covering of reef-limestones; and (*c*) islands formed entirely of reef-limestones.

(a) *The Volcanic Islands.*

131 The purely volcanic islands form a line running parallel to the
133 long axis of the group, but a little to the west of it. The direction
of this line is approximately N.N.E. and S.S.W.

At the southern end is the little island of Ata or Pylstaart, which, judging from the extremely steep and rugged outline that it presents, may possibly be a member of this series. I have, however, merely seen a photograph of the island, and it can therefore only provisionally be reckoned a member of the volcanic series.

The islands of Honga-tonga and Honga-hapai, lying north of the west end of Tongatabu, are I believe the fragments of an old crater. They stand out of the sea about a mile and a half apart, and reach a height of some 300 and 200 feet respectively. Each island has a high vertical face on the side turned towards the other, and on all sides hard black layers of rock are seen alternating with softer ones, and slope away from a point situated between the two islands.

Fifteen miles to the north of these islands is the recently-formed volcanic mound named Falcon Island.

133 In the year 1867, H.M.S. 'Falcon' reported a shoal in the position
of the present island, and ten years later smoke was seen issuing
175 from the sea at this spot by H.M.S. 'Sappho.' In October 1885, a
submarine volcano suddenly burst into activity, and built up a

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

been removed by the action of the waves. Much of the material so removed has been thrown upon the north side of the island, forming the flat above mentioned, and an extensive shallow area beyond it. 133

It seems clear that unless another eruption occurs the island will in a short time be reduced again to the condition of a submarine bank formed of volcanic ashes rearranged by the action of the waves *.

It is remarkable that the depth of 1021 fathoms has been found between Falcon Island and Nomuka, the nearest of the Hapai Islands.

Next in the series come the high volcanic islands of Tofua and Kao. Tofua is a volcano in a state of intermittent activity. It is marked in the Admiralty chart as attaining a height of 1890 feet above the sea. The summit presents a fairly even outline when seen from a distance, and the sides slope steeply in all directions. The crater is situated on the northern side. 131 133

Kao is said to attain a height of over 3000 feet. It presents a singularly-perfect conical outline, from all points of view. It has not been in activity within the period of native tradition.

Continuing the line are Metis Island, which appeared a few years before Falcon Island, and is stated in the Admiralty chart to have been still in activity in 1886; and the volcano Lette, which is figured in the chart of the group (No. 2421). In 1866, when this island was visited by Lieut. Creak, R.N., in H.M.S. 'Esk,' vapour was seen issuing from the crater †.

To the north of Vavau is the volcano of Amargura. An explosion occurred in 1847, when the island was in part "destroyed by the eruption of its crater" and "ashes were thrown in large quantities on passing ships 500-600 miles to the N.E." ‡.

Northwards the line passes through Boscawen and Keppel Islands, which lie close together, halfway between Amargura and Samoa.

Boscawen Island (=Niua-tabu-tabu) is described in Findlay's Directory as one entire mountain about 2000 feet in height "resembling the Moluccas;" it is therefore probably a volcanic island.

Niua-fou (or Good Hope Island), lying considerably to the westward of these islands, is probably a member of the same series. It is described as a volcanic island with black lava rocks all round the shores, and with a crater in the middle containing a brackish-water lake. An eruption occurred in 1853, when a village was destroyed and many lives were lost. Another eruption occurred in 1867 §.

In the continuation of the direct line northward is the large volcanic island of Savaii, the most westerly of the Samoan islands. The Samoan volcanoes, however, form a series having a direction approximately W.N.W. and E.S.E., which crosses that of which the

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* For a fuller account (with figs.) of the present condition of the island, see a paper by the present writer in Proc. Roy. Geograph. Soc. vol. xii. (1890) p. 157. (113)

† Findlay, 'South Pacific Directory,' 3rd ed. p. 456.

‡ Findlay, *op. cit.* p. 456.

§ Findlay, *op. cit.* p. 558.

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

102
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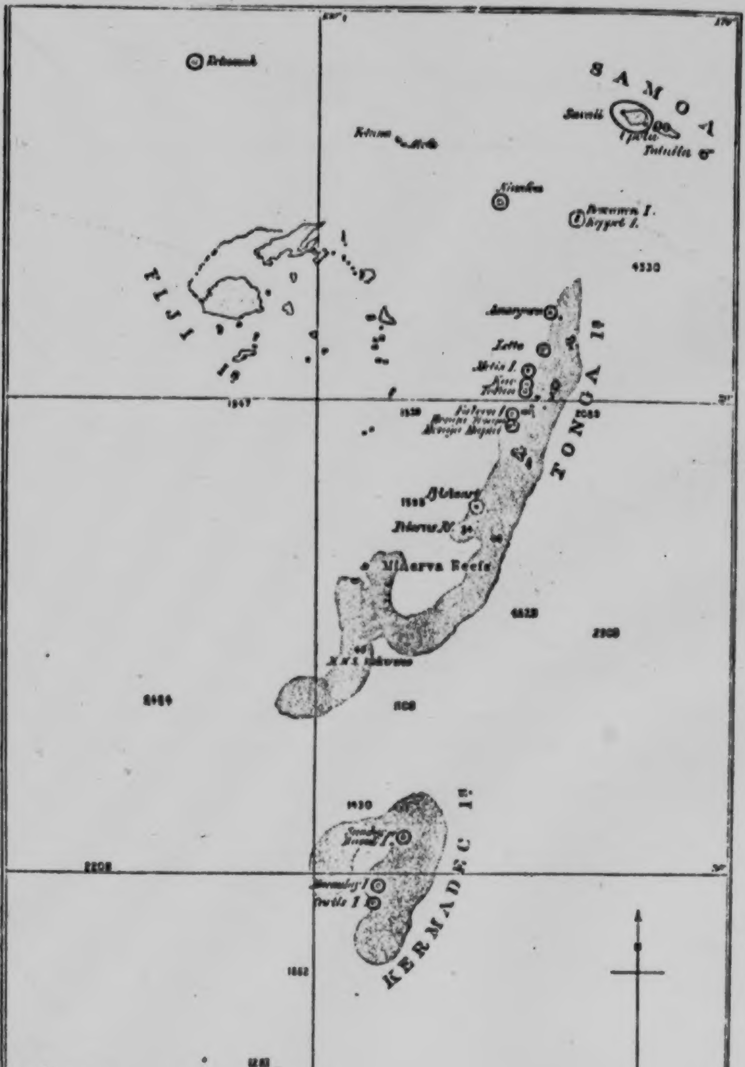
SAMOA Iˢ
Savaii
Upolu
Tutuila
Niuafou
4530
FIJI Iˢ
Amargura
Late
Metis I.
Kao
Tofua
TONGA Iˢ
1529
2083
1567
1598
Minerva Reefs
4523
2900
2484
1100
1430
KERMADEC Iˢ
2208
1862
1243
NEW ZEALAND
MAP
of
PART OF THE
SOUTH PACIFIC OCEAN.

[P. 594]

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

Tongan volcanoes are members at right angles. It is significant 131
that Savaii is the largest of either series, and is situated at the point 133
where they intersect. Savaii ends the series in a northerly direction.

The soundings which have been taken in this part of the Pacific 133
show that the Tonga Islands are situated on a ridge, which rises to within 1000 fathoms of the surface and is prolonged in a south-westerly direction for half the distance between this group and New Zealand. To the south of the Tonga Islands the top of the ridge reaches the surface of the sea, or comes close to it, at the Minerva Reef and three shoal patches indicated in the chart.

On the eastern side, where soundings have been taken, the slope descends to depths of over 2000 fathoms, and at two points, one to the north-east of Vavau, the other to the east of the southern extension of the ridge, the very great depths of 4530 and 4428 fathoms have been sounded.

On the west the slope appears to be less steep, but a depression (with a depth where it has been measured of over 1500 fathoms) lies between this ridge and the Fiji group.

The Kermadec Islands, lying between the southern part of the ridge and New Zealand, are the highest points of a large area which is also within the 1000-fathom line. It is, however, separated from the Tonga ridge to the north and New Zealand to the south by depths of over 1500 fathoms.

Both elevations are traversed by a line of volcanoes, which, as Mr. S. Percy Smith * has pointed out, continues the direction of that of the Taupo Zone of New Zealand. Mr. Smith suggests that the volcanoes are situated in the course of a great fissure which extends from Ruapehu, at the southern end of the Taupo Zone, through the Kermadec and Tonga groups to Samoa. This view receives some support from the fact that the eruption of Falcon Island, beginning in Oct. 1885, was contemporaneous with the increased activity (in November) of the geyser of the white terrace of Lake Rotomahana, which preceded the great explosion of Tarawera in June of the following year.

[In the map facing this page the dotted areas between New Zealand and 102
the Tonga Islands indicate depths of less than 1000 fathoms. (The eastern 131
limit of the Kermadec area is undetermined.)

The thick circles indicate active or extinct volcanoes, the broken circles 133
islands whose volcanic nature is doubtful.]

(b) *Islands formed of Sedimentary Volcanic Material.*

Belonging to this division are several islands in the Hapai Group, 133
and the island of Eua.

The Nomuka Group, which forms the southern division of the Hapai Islands, consists of a number of small islands which are the highest points of an extensive plateau. Over a large area the top of this plateau is within 50 fathoms of the surface of the sea.

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* 'Geological Notes on the Kermadec Group,' Trans. N. Z. Inst. vol. xx. p. 333.

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

Some miles to the westward of Mango is the small island of 133 Nomuka-iki (=little Nomuka), to the south of Nomuka, and 134 separated from it by a narrow channel. This island is about 60 feet high, and one mile in its longest diameter; it also is [131] formed in part of a hill of volcanic tuff, the remainder consisting of a flat of calcareous sand. The layers are horizontal and are made up of finer and coarser beds of brown and grey ashes alternating with one another. Here there are no fragments of coral mixed with the ashes. A fossil univalve of the genus *Pyrula* occurred in these beds, and some of the finer ones contained vertical burrows (of an annelid?) which were filled in with the coarser material of the overlying layer.

As at Mango, there are no raised coral-rocks overlying the volcanic beds, although broad fringing reefs surround the shores.

The beds have evidently been laid out by water, but under quieter conditions than those of the neighbouring island, and the mound has since been elevated to its present height.

A little to the south of Mango are the two islands Tonumeia and [131] Kelefasia. Capt. Oldham visited Tonumeia when engaged in the survey of the group in 1890. He found it to consist of volcanic tuffs forming a cliff 80 feet high, and dipping at an angle of 3° to the south *. Mr. Harker finds that a specimen of these beds consists of "fine volcanic ash compacted by a calcareous and ferruginous cement into a yellow-brown rock."

Capt. Oldham also obtained some black nodules two inches in diameter, with portions of a calcareous matrix still adherent, and which had presumably weathered out of the layers of tuff. Mr. [135] Harker describes these as consisting of oxide of manganese having "the general characters of psilomelane, but soft and of a low specific gravity, and therefore perhaps altered."

The presence of these nodules, supposing them to have occurred 133 naturally in the beds of which Tonumeia is composed, is very remarkable. They are generally supposed to be formed only in deep water; but the situation of the island on the same shallow plateau as Mango and Nomuka-iki, and the general correspondence of its formation with theirs, point strongly to the conclusion that these islands were all formed under similar conditions. The presence of coral and other organic remains amongst the volcanic constituents of these islands shows that they were formed in shallow water.

Judging by its appearance as seen from the sea, I have little doubt that Kelefasia belongs to the same class of islands.

The island Tonua, to the north-east of Mango, was also examined [131] by Capt. Oldham. It is composed of yellowish-white rocks which [134] form a cliff twenty feet high, and consist of volcanic ashes with little calcareous matrix, though shells of pteropods and the cast of a gasteropod (*Murex?*) were found among the volcanic fragments †.

In the central part of the Hapai group there are two islands,

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* The substance of Capt. Oldham's report on this island and Tonua is given in Mr. Harker's paper in the Geol. Mag. for June, 1891.

† Harker, *op. cit.*

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

133 Kotu and Matuku, which, as seen from the sea, appeared to me to be of the same nature as those above described in the Nomuka [134] group. The only confirmatory evidence that I can offer is a remark on the island of "Kotoo" in the narrative of Capt. Cook's Voyage to the Northern Hemisphere (vol. i. p. 271), where it is stated that this island "terminates in reddish clayey cliffs."

131 133 Leaving the Hapai Group, I will now attempt to describe the island of Eua, lying to the south-east of Tongatabu. (For the map of this island, see Pl. XXIII.) Eua is somewhat oval in shape, but pointed at the two ends; the long axis is directed almost exactly north and south. It is about 12¼ miles long, rather more than 4 miles broad, and attains a height of 1078 feet. The island is formed of a basis of volcanic rock, in great part covered by lime- 133 stone. A ridge of high ground traverses the island from north to south, attaining a height of over 1000 feet at two points, one near the middle of the ridge, the other about four miles to the south. Between these two points the general level of the ridge is from 800 to 1000 feet. The volcanic formation comes to the surface over a great part of this high ground, and where it is bare of vegetation is readily recognized by its bright red colour; but patches of limestone occur in many places, sometimes in large projecting masses, like that which forms the south summit, sometimes weathered down into groups of isolated pinnacles standing on the volcanic basis.

Northward the ridge descends gradually to an elevation of about 500 feet and extends at this level, as a long flat-topped plateau or terrace, to the north end of the island. This will be referred to as terrace *b*. The volcanic basis appears in irregular patches along the centre, but its eastern and western sides are bordered by cliffs of limestone, some 200 feet in height, whose base evidently marks an old shore-line at a previous stage of elevation of the island.

The whole eastern side, presented to the trade wind, is very abrupt, and rises in range above range of limestone-cliffs, the steep slopes between them being covered with dense wind-swept forest. The descent is interrupted along the greater part of this aspect by a narrow terrace, from which on the one hand perpendicular cliffs descend to the sea, and on the other a slope of débris leads to the foot of the range of cliffs which limit the central ridge along its whole length. This terrace is, however, absent opposite the middle of the eastern aspect, and here a steep slope extends directly from the foot of the higher range of cliffs to the sea. The volcanic basis is exposed on this slope, and at the shore are projecting dykes of intrusive rock. Farther to the south the terrace is again interrupted by a break occupied by a small terrace at a lower level. At this point also a dyke appears on the shore at the foot of the cliffs.

Along its western aspect the central ridge is well-defined at the northern and southern ends, being bordered by limestone cliffs. The middle part of this aspect is broken up by small valleys which

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

[Vavau Group]

The summit of the other three-storied hill, Mo'unga Lafa, is, I believe, as the name implies, flat. The uniform covering of bush obstructs any general view of it; but in traversing it I was unable to find any depression corresponding to that in the summit of Talau. 133 [137]

In the short visits that I paid to the Vavau Group, I landed on a few only of the islands, and had not the means of making satisfactory observations of contour. I have drawn attention to the features above described, with the hope that when the survey of the Tonga Islands which was begun by H.M.S. 'Egeria' is continued, the heights and contours of the islands and terraces occurring at different levels in this remarkable group may receive special attention.

The peculiar shape of the group, penetrated by long, narrow, and deep inlets of the sea, may perhaps be accounted for by supposing a much-denuded basis, probably of volcanic nature, whose surface was deeply scored by valleys previous to its subsidence. While the island was submerged the deposits which formed the limestone rock were laid down, and the lower layers would have already begun to accumulate during the downward movement. But, though the base of the limestone deposit may very probably have been formed during subsidence, the upper part and the contour of the land must be chiefly referred to the succeeding period, which has, in the main at least, been one of elevation.

During intervals in the elevation, the terraces and plateaus which constitute so marked a feature have been formed, first on the highest and later on the lower peaks and ridges, while the intervening valleys still penetrate far among the islands and promontories.

It is interesting that, both at Vavau and at Eua, the reefs which have been formed during intervals in the elevation of the islands have in some cases acquired atoll- or barrier-like contours.

The larger islands of the Hapai Group lie in a line extending from Haano in the north to Uiha and Alefa in the south. They are indeed the elevated parts of a long reef, which, after extending in a south-westerly direction for some 30 geographical miles, sweeps round in an even curve to the west and north-west, and is finally lost among the reefs and islands of the Kotu Group. At two points in the northern part of the reef, gaps are indicated in the chart. The northern of these is bordered by reefs which are continued for a considerable distance in a westerly direction. To the south of the southern part of this reef there is an outer and more interrupted line of reef concentric with it. On the convex or weather side the margin of the reef is even, but on the opposite side the coral grows in irregular patches and the margin is ill-defined. 131 133

The island of Lefuka may be taken as a type of the islands situated on the reef. It is about three quarters of a mile in breadth, and some three or four miles in length. From the beach on the western side there is a very gradual slope towards the eastern side of the island, which is about 20 feet above high water. Near the 133

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

[Tongatabu]

133 channel is composed of a higher central area, separated by a rapid descent from the lower peripheral part. It has evidently been elevated in two stages.

IV. Conclusion.

133 105 The view of the mode of formation of the Tonga atolls suggested in Darwin's 'Coral Reefs,' is that they grew during a period of subsidence, when the volcanoes of the group were inactive, and that elevation has occurred simultaneously with a recent volcanic outbreak [*]. Dana also considers that the islands were formed during subsidence, and regards the elevation which has taken place as merely a local phenomenon [†]. The additional information on the group which we now possess appears to make a different view of the formation of these islands more probable. It is clear that elevation has been in progress for a long period, and has been renewed again and again after intervals during which reefs of considerable extent have grown; it has to a greater or less extent affected all the larger divisions of the group, while at Vavau and Eua reef-structures have been raised to heights of over 500 and 1000 feet.

Such an elevatory movement is quite in keeping with the presence of the line of volcanoes which traverses the group, and I am not aware that there is any evidence that these have, as a whole, passed through a quiescent stage previous to their activity in recent times.

With regard to atolls in general, one reason for considering them to have been formed during subsidence is the improbability of there being any other basis than a subsided island on which the reefs could have grown. In the Tonga Islands, however, the soundings of H.M.S. 'Egeria' show that Tongatabu and Nomuka rest on shallow banks, and where the underlying basis of the islands is exposed, as in the Nomuka group and at Eua, it is seen that they consist of layers of volcanic materials laid out under water. The process now going on at Falcon Island illustrates the way in which a volcanic mound, composed of soft material and originally standing above the sea, may be reduced to a submarine bank, and so form a basis for coral growth.

In consideration of these facts it appears probable that the atoll-shaped islands of the southern part of the Tonga Group have grown on banks of volcanic material laid out in shallow water, and that there is no necessity to call in the hypothesis of subsidence to account for their formation.

EXPLANATION OF PLATE XXIII.

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[114]

Map of the Tonga Islands. The map of Eua is prepared partly from the survey of H.M.S. 'Egeria' (1888). The outlines of the patches of volcanic formation in the central part of the island are not accurately drawn.

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[*] 'Coral Reefs,' 3rd ed. pp. 177, 186, 188.

[113] [†] 'Origin of Coral Reefs and Islands,' Am. Journ. Sci. ser. 3, vol. xxx. (1885) p. 90.

96: Lister

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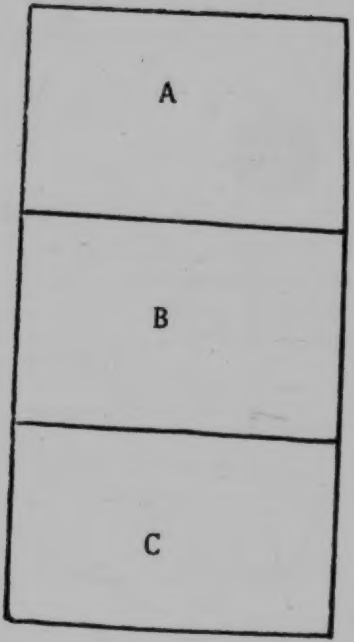
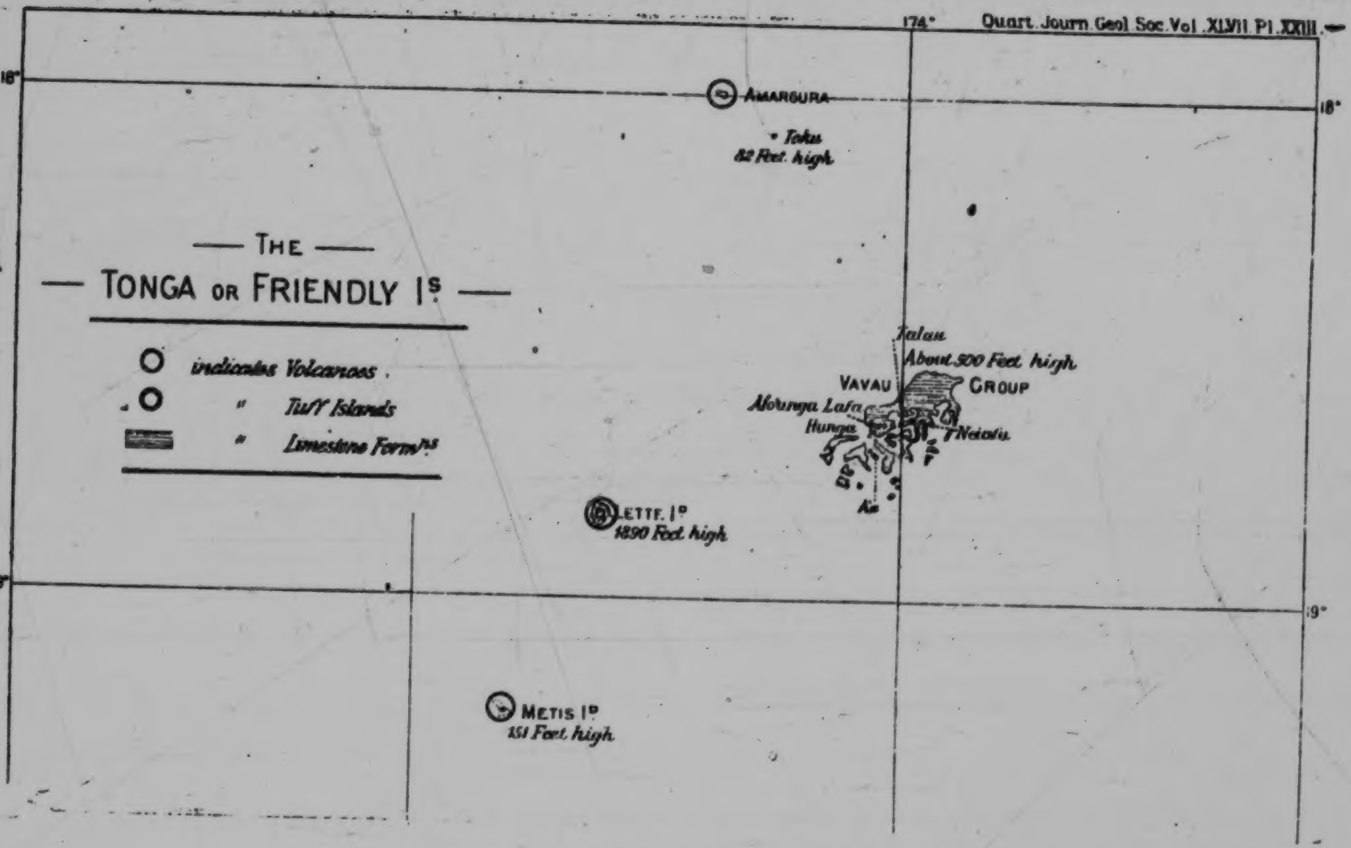


Chart of Positions of End Map [facing End Map]

[End Map, A]

Quart. Journ. Geol. Soc. Vol. XLVII. Pl. XXIII.



— THE —
— TONGA OR FRIENDLY Is —
○ indicates Volcanoes.
○ " Tuff Islands
▬ " Limestone Formns
174°
18°
19°
AMARGURA
Toku
82 Feet high
Talau
About 500 Feet high
VAVAU
GROUP
Aforunga Lafa
Hunga
Neiafu
Ka
LETTE Id
1890 Feet high
METIS Id
151 Feet high

96: Lister N-5 (1889-1890) 1891
OU9 Tonga OU9

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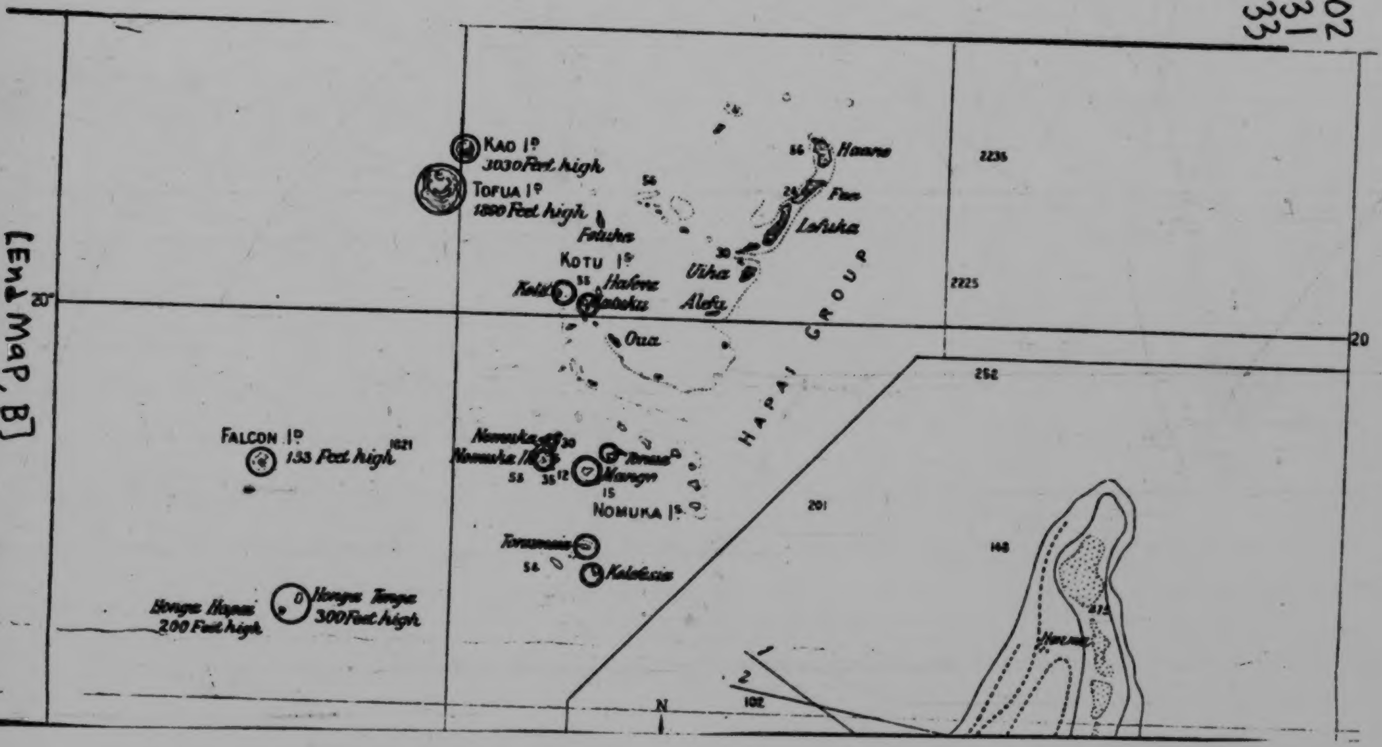
96: Lister N-5 (1889-1890) 1891

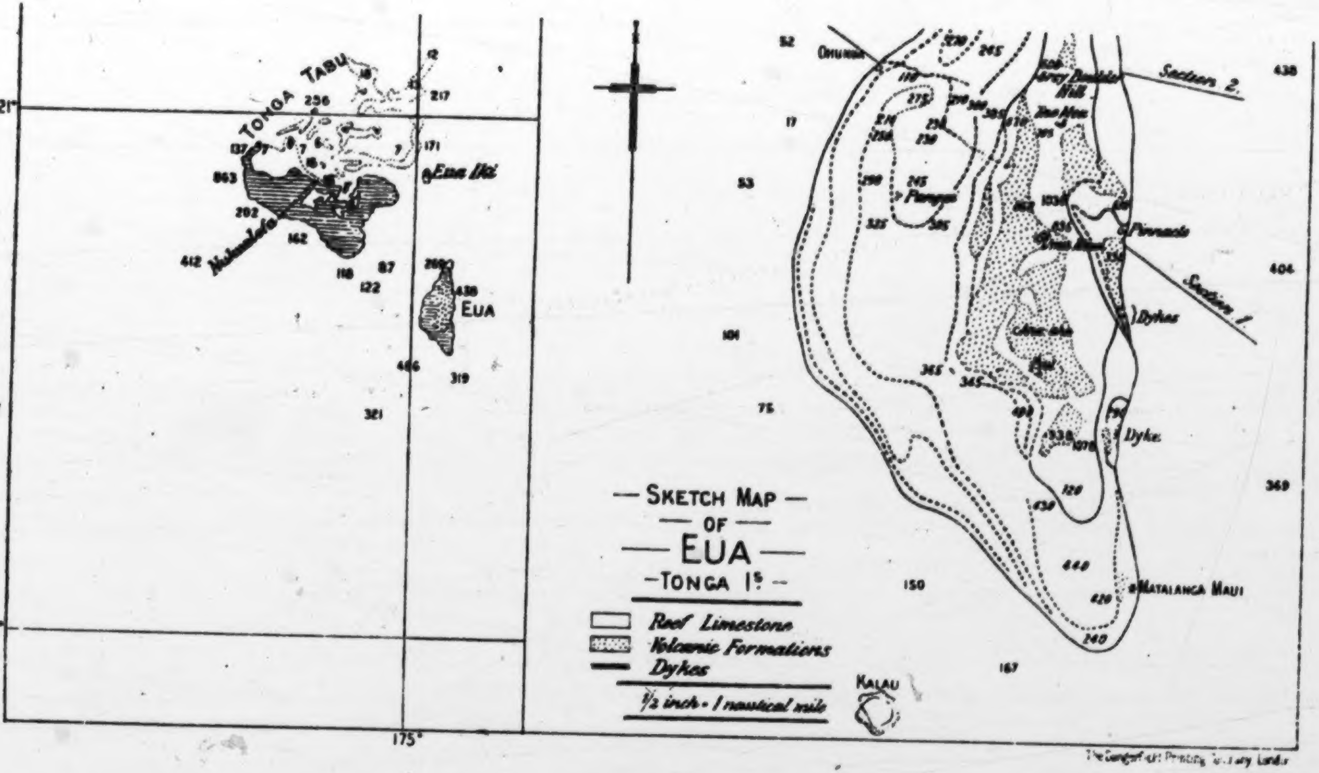
OU9 Tonga OU9


KAO Id.
3030 Feet high
TOFUA Id.
1890 Feet high
Fotuha
KOTU Id.
Kelei
Hafeva
Matuku
56
Haano
Foa
Lefuka
Uiha
Alefu
Oua
HAPAI GROUP
2236
2225
252
201
148
102
20°
20
FALCON Id.
133 Feet high
1021
Nomuka
Nomuka Iki
Tonua
Mango
NOMUKA Is.
Tonumea
Kelefesia
Honga Hapai
200 Feet high
Honga Tonga
300 Feet high
N
1
2

[End Map, B]

96: Lister N-5 (1889-1890) 1891 OU9 Tonga OU9

[End Map, C]


TONGA TABU
Eua Iki
EUA
Nukualofa
21°
22°
175°
Ohunga
Section 2.
Grey Boulder Hill
Pangai
Pinnacle
Section 1.
Dykes
Dyke
Matalanga Maui
Kalau
Reef Limestone
Volcanic Formations
Dykes
½ inch = 1 nautical mile

— SKETCH MAP —
— OF —
— EUA —
— TONGA Is —

102
131
133

/8 cont./

128 much indebted for numerous suggestions.

His Royal Highness Crownprince Tungi of Tonga I thank for his great understanding for my work and his influential assistance.

114 I should also like to mention in particular my faithful Tonga friend, F. Sitoa of Nomuka who, for three months, was my constant companion and intelligent go-between.

000 I am indebted to so many who willingly helped me in the field that it would be unjust to mention individual names. Nevertheless, I should like to mention a few here:

Mr. W. Straatmans and Mr. M.L. Apon, Nuku'alofa (Tonga);
S. Matoto, Nomuka (Tonga);
Tukia, Pangai/Lifuka (Tonag);
The Honorable Malupo, 'Uiha (Tonga);
H. To'angutu, 'Uiha (Tonga);
/9/ 'A. Vaea, 'Uiha (Tonga);
S. Amalani, Fungamisi/Vava'u (Tonga);
Mr. Schulke, Vava'u (Tonga);
Mr. E. Stehlin, Apia (Samoa);
Father Jepson, Apia (Samoa);
Father Merten, Falealupo/Savai'i (Samoa);
Vito, Falealupo/Savai'i (Samoa);
Mr. W.J.E. Eason, M.A., Suva (Fiji);
E.N. Sanimo, Nasigatoka (Fiji);
Mr. A.E. May, Roseville/Sydney (Australia).

128 I must thank Dr. H. Hurlimann, Winterthur/Switzerland, for the scientific names of Tongan plants.

To Mrs. G. Konig I am indebted for the drawings and the map.

My wife I thank for her tireless assistance in the clerical work and the proofreading; with the latter my mother also helped me very much.

G. K.

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131 /11/

INTRODUCTION

The Tonga Islands lie in the southwestern Pacific. The

/11 cont./

131 Archipelago comprises 159 predominantly small islands scattered between approximately 15 degrees and 23 degrees latitude south and 173 degrees and 176 degrees longitude west. The entire land area amounts to approximately 696 square kilometers. (1)

[113] [114] 1. = 268.9 square miles, according to the list in A. H. Wood, A History and Geography of Tonga /cited in English/, Auckland, 1945, p. 109; as yet, completely reliable information does not seem to exist; however, the area of 997 square kilometers quoted by W. Geisler (Allgemeine Landerkunde von Australien und Ozeanien /General geography of Australia and Oceania/, Hannover 1931. p. 21) is probably too high.

The largest of the 36 inhabited Tonga Islands are Tongatapu (2)

[194] [656] 2. The new spelling in Tonga, determined by government ordinance, definitively uses p for the sound midway between p and b; the spoken sound ng is now also written out (Formerly it was simply g). "Tonga Government Gazette" /cited in English/, March 31, 1943)

with approximately 256 square kilometers and Vava'u with approximately 89 square kilometers. (3)

3. Wood, loc. cit. p. 96, 99.2 square miles for Tongatapu; p. 104, 34.6 square miles for 'Uta Vava'u.

133 The inhabited islands of the Archipelago, which is partly of volcanic, partly of coral origin, and extends mainly in a north-northeast, south-southwest direction, are mostly coral limestone formations and were formed through the elevation of atolls or barrier reefs. Geographically and administratively they are divided into the three main groups of Tongatapu (in the south) with the "capital city" of Nuku'alofa, Ha'apai (in the center) with the main harbor Pangai on Lifuka, and Vava'u (in the north) with the main harbor of Neiafu; far to the north lie Niua Fo'ou (evacuated in December 1946 because of a

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100: Koch--507 E-4,5 (1951-1952) 1955 OU9 Tonga OU9

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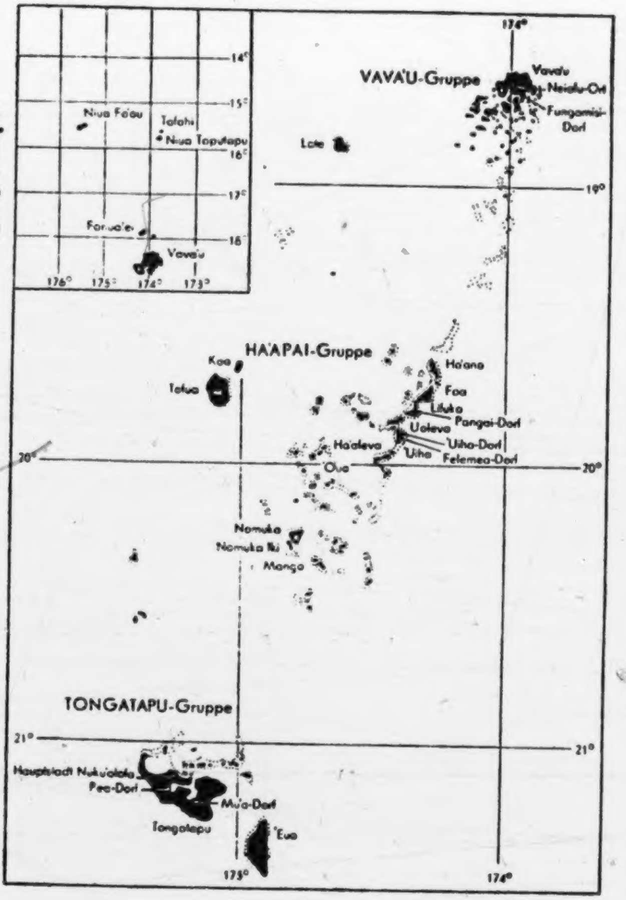
Niua Fo'ou
Tafahi
Niua Toputapu
14°
15°
16°
17°
18°
Fonualei
Vava'u
176°
175°
174°
173°
174°
VAVA'U-Gruppe
Vava'u
Neiafu-Ort
Fungamisi-Dorf
Late
19°
HA'APAI-Gruppe
Kao
Tofua
Ha'ano
Foa
Lifuka
Pangai-Dorf
Uoleva
Uiha-Dorf
Uiha
Felemea-Dorf
Ha'afeva
O'ua
20°
20°
Nomuka
Nomuka Iki
Mango
TONGATAPU-Gruppe
21°
21°
Hauptstadt Nuku'alofa
Pea-Dorf
Mu'a-Dorf
Tongatapu
'Eua
175°
174°

/map/

423 neither allotment size has been popular to the point of significantly altering population distribution. While several estates were initially surveyed into 15 acre allotments, most have since been resurveyed to the stand eight and one-quarter acre size (Wood 1932, p. 74).

● 131 The estimated total land area of the Tongan Kingdom is
184,674 acres, or approximately 288 square miles (Report of the
Ministry of Lands and Survey, 1973, p. 14). Approximately 40
percent of this total represents the Tongatapu island group.
Vava'u and Ha'apai represent 22 percent and 18 percent, respec-
tively, with the remaining 20 percent being volcanic and largely
161 uninhabitable. Population estimates of 101,608 for 1975, projected
in the 1970 economic survey, allow 1.8 acres per person or an
overall density of 352 persons per square mile (An Economic Survey
161 of Tonga: 1970, p. 10). / However, a breakdown of Tongan districts
162 illustrates the maldistribution of population and land resources.
Tongatapu, with over 60 percent of the total population, currently
has a ratio of approximately 1 to 1.02 acres per person, and an
estimated 1975 population density of 628.8 persons per square
mile. Ha'apai, not including Tofua and Koa, shows 0.94 acres per
person and a density of 685.6 persons per square mile. 'Eua, on the
opposite extreme, contains 4.3 percent of the population, or approxi-
mately 4,370 persons. 'Eua is an estimated 33 square miles in size,
resulting in a population density of approximately 129 persons per
square mile, or 5.0 acres per person (see Table 9).

APPENDIX A

GEOGRAPHICAL SURVEY OF TONGA

● 131 The islands comprising the Kingdom of Tonga are scattered
through 8°30' of latitude, from 15° South to 23°30' South, and
4° of longitude, from 173° West to 177° West. Directionally, the
Kingdom is located East of Fiji and South of Samoa (Harris 1966,
p. 124). The total area encompassed by the Kingdom is over 20,000
[361] square miles. However, of this area only 288 square miles are land
and this amount is scattered over 150 islets of which only 45 are
[162] inhabited (Kennedy 1968, p. 22). The largest and most populated
island of the Kingdom is Tongatapu which accounts for 99 square
161 miles and holds a population in excess of 50,000. Estimates of
Tonga's total population vary from 80,000 to 100,000. However,
sources within the nation give the total as of January 1, 1975,
as 95,000 (Report of the Ministry of Health 1973, p. 26).

133 The islands of Tonga lie in two fairly parallel lines and are actually the tops of two undersea mountain ridges. The basic orientation is Northeast to Southwest with several notable outliers in the Northwest of the Kingdom's territorial limits. These outliers include the islands of Niuatoputapu and Niuafo'ou (Kennedy 1968, p. 22).

Physically, the geography of the islands is not uniform. There are three divisions of islands by geologic type (Figure 3).

[TEXT CONTINUED ON PAGE 165]

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

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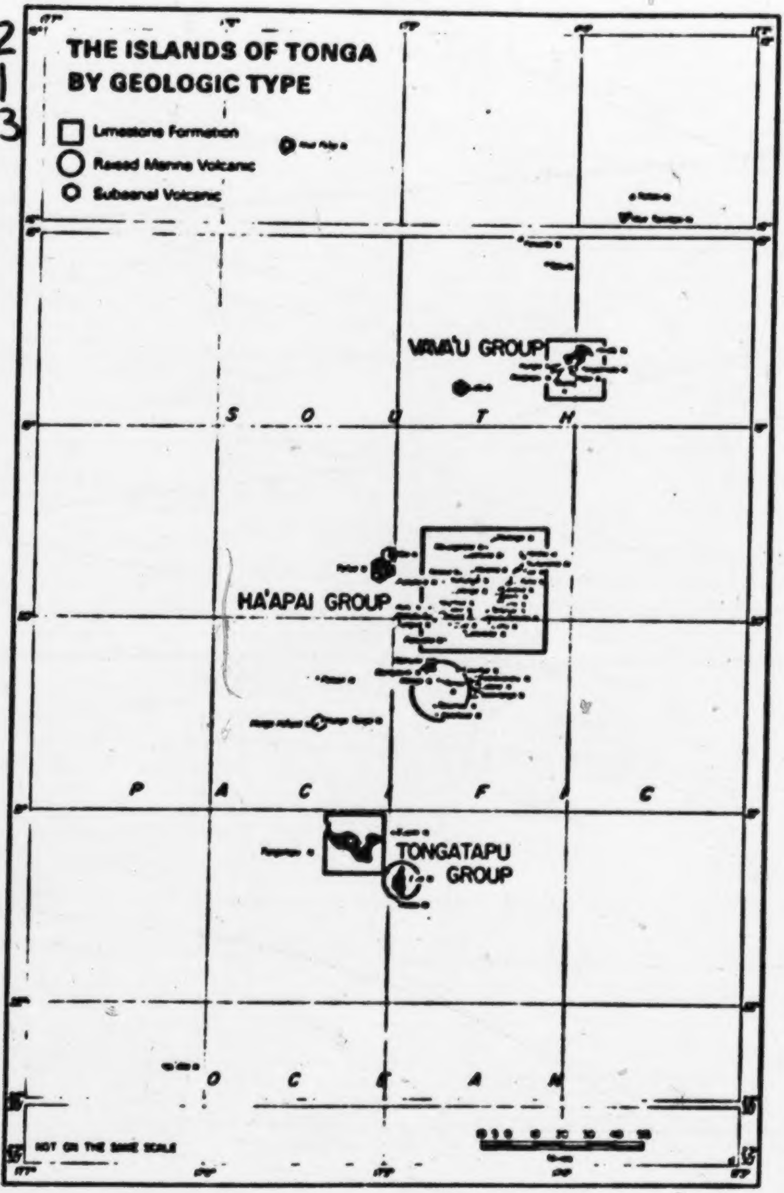
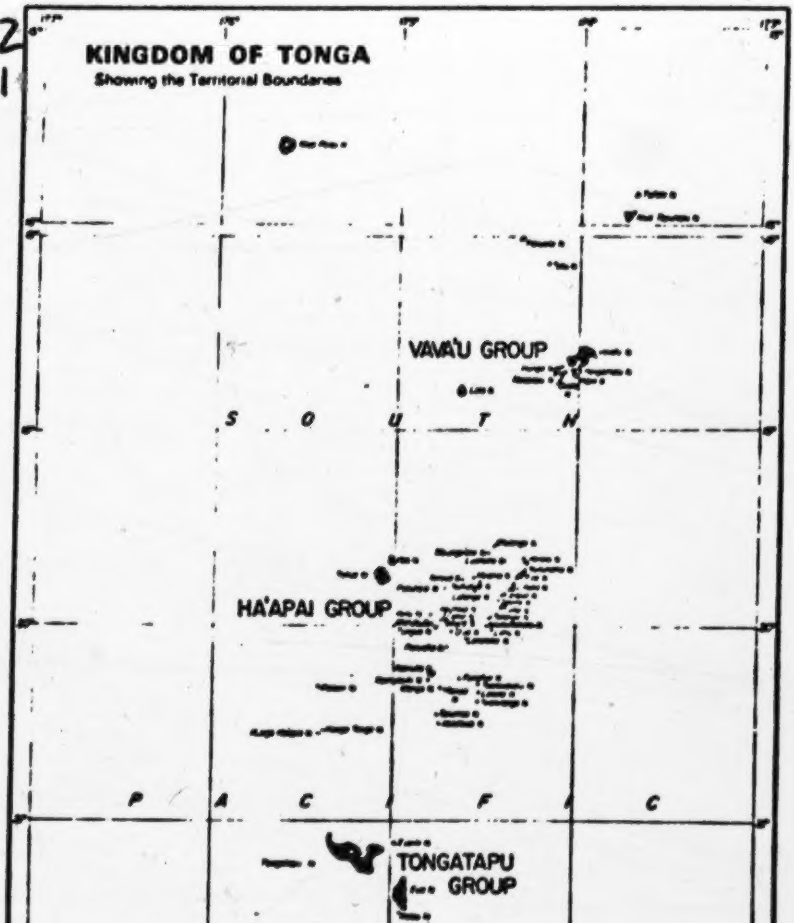
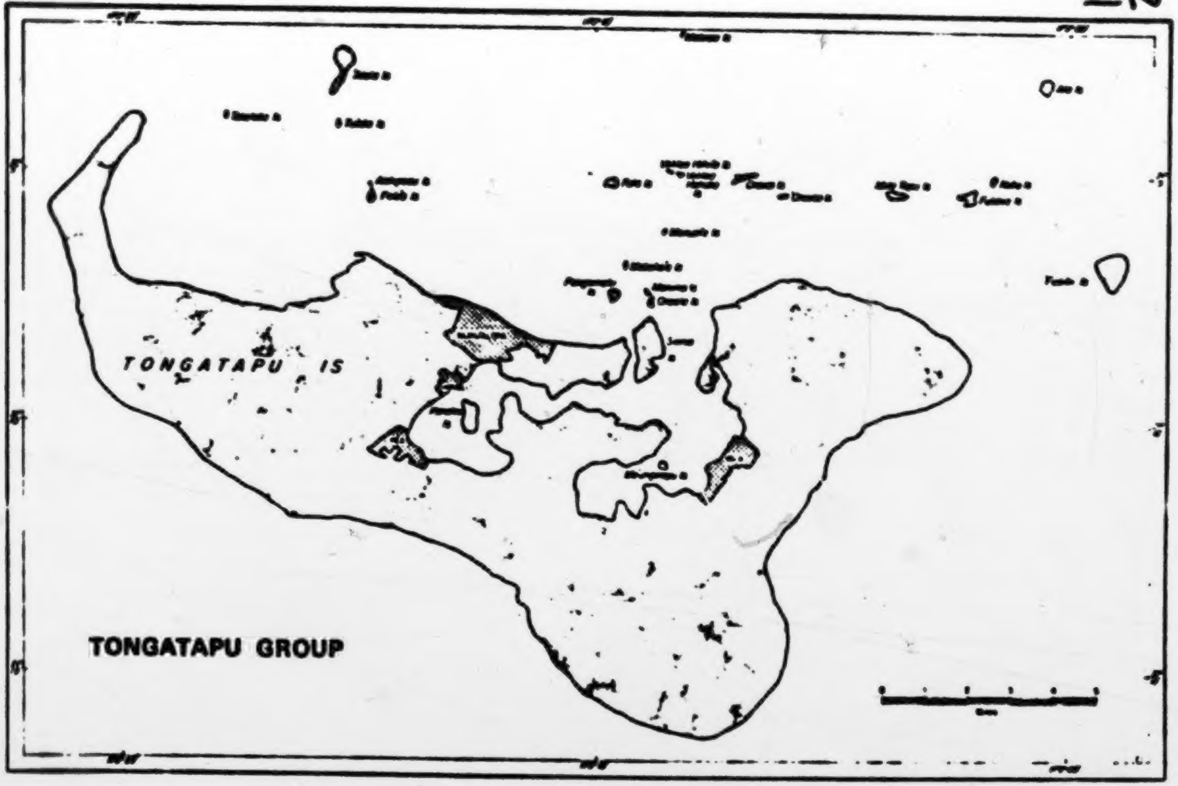

THE ISLANDS OF TONGA
BY GEOLOGIC TYPE
Limestone Formation
Raised Marine Volcanic
Subaerial Volcanic
VAVA'U GROUP
HA'APAI GROUP
TONGATAPU
GROUP
S O U T H
P A C I F I C
O C E A N
NOT ON THE SAME SCALE

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

102

131

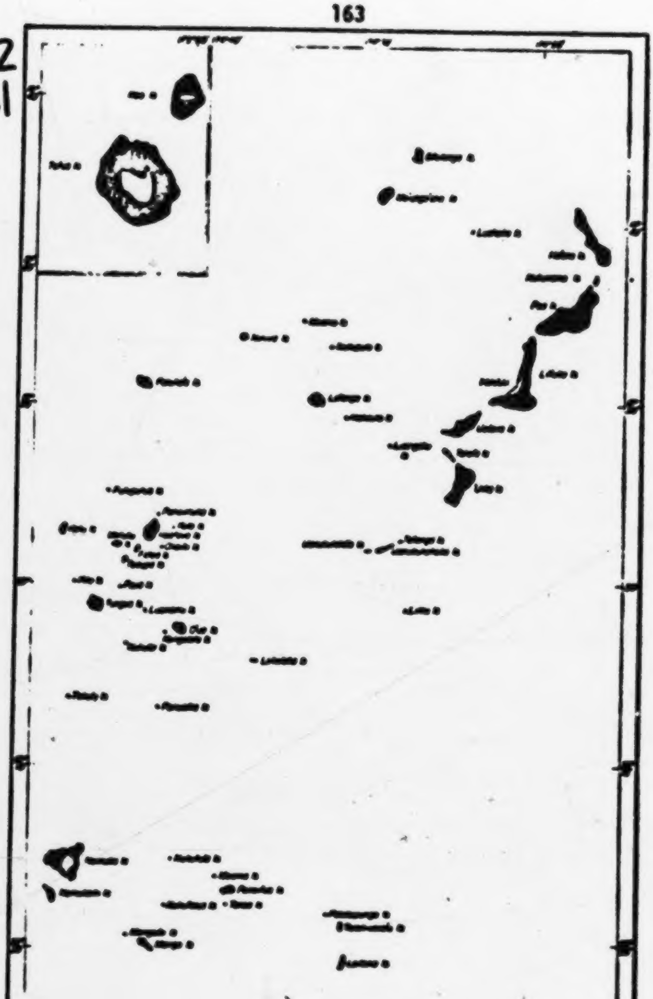

KINGDOM OF TONGA
Showing the Territorial Boundaries
VAVA'U GROUP
S O U T H
HA'APAI GROUP
P A C I F I C
TONGATAPU GROUP
O C E A N
NOT ON THE SAME SCALE
0 5 10 20 30 40 50


TONGATAPU IS

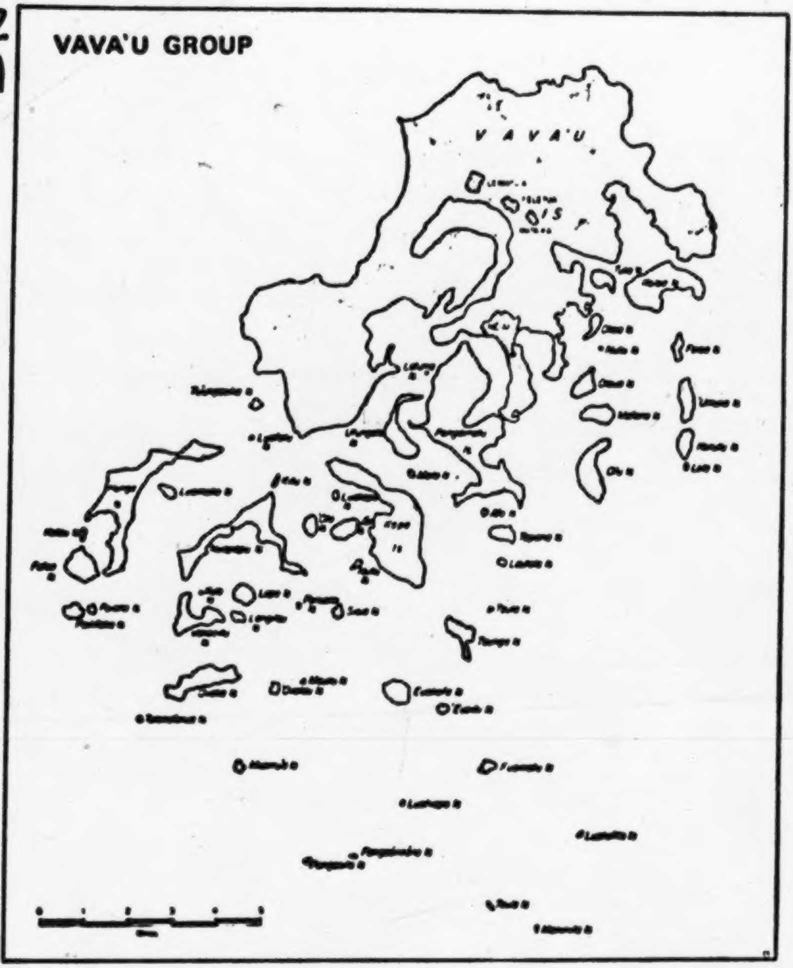
TONGATAPU GROUP

101: Clark K-4,5 (1974) 1978 OU9 Tonga OU9

102
131


HA'APAI GROUP

102
131


VAVA'U GROUP
V A V A' U

133

1. Subaerial volcanic islands, formed above the sea by volcanic action.

2. Raised marine volcanic islands formed beneath the sea and elevated, composed of both volcanic material and limestone.

3. Islands formed entirely from limestone.

The volcanic islands to the west form a line extending Northeast to Southwest, approximately parallel to the long axis of the group. Raised marine volcanic islands are found in the Southern Ha'apai group and the island of 'Eua. Limestone islands comprise Tongatapu, the Vava'u group and the Northern Ha'apai islands. The material of this latter group is entirely of coral origin which seems to have been formed by the elevation of the various atolls through geologic history (Pacific Islands, Vol. III, 1944, pp. 15-21).

[731] [134] The islands have experienced volcanic activities in historic time which, while not always severely damaging, have caused evacuation of some islands. It is also significant to note this activity has contributed to the soil fertility of the islands adjacent to an eruption through the spreading of volcanic ash over the area. The majority of this activity is found in the western chain of islands away from the mainstream of Tongan life located on the coral limestone islands to the east (Pacific Islands, Vol. III, 1944, pp. 15-21).

● 131 Geographically, the islands of Tonga are found in three distinct groups spread along a 500 mile North-to-South axis (Figure 4A). These groups are: Vava'u to the Northeast, the central islands of Ha'apai, and Tongatapu to the Southwest. The

The
131 majority of population, social, political and economic activity
361 is found on Tongatapu centering on the capital, Nuku'alofa.

132 The distance over which the islands are spread allows some variety in climate. Temperature is, on the whole, equable. The absolute maximum seldom rises above 90°F or falls below 80°F. The temperature minimum seldom reaches above 70° or falls below 50°F. For most of the year the mean temperature is between 70° and 80°F. As is often the case in tropical locals, seasonality is measured in terms of wet and dry periods. Rainfall in Tonga occurs on the average of 170 days during the year in progressively heavier amounts northward (Table 27). The wet season spans the months from December to April. Dryer periods and occasionally droughts occur from May through November. Overall averages for rainfall vary from 67" in the South, to 117" in the North.

132
134 Coupled with the advantages of a warm temperature range and an adequately distributed rainfall, Tonga possesses a third basic agricultural necessity, rich soil.

132 TABLE 27.--Mean Annual Rainfall: 1932-1940.

Tongatapu	65 inches
Ha'apai	67 inches
Vava'u	75 inches
Niua Toputapu	95 inches
Niua Foou	121 inches

SOURCE: Pacific Islands, Vol. III: Western Pacific (Tonga to Solomon Islands) (Washington: Naval Intelligence Division, 1944).

511
178 pressures of population upon the land. The result of this pressure
[439] is seen in part in a growing dependency on imported foodstuffs.

Exports have been the only significant source of income
457 for the Kingdom, though earnings from tourism and overseas remittances
439 are becoming increasingly important. Of this trade, copra, bananas,
and pineapples represent the only items traded in quantity internationally. Copra currently accounts for more than 70 percent of the total exports and, therefore, the export income of Tonga is largely at the mercy of fluctuations in world copra prices (Kennedy 1968, p. 20; Britten 1968, p. 53).

439 A diversification of export crops is possible under existing
[131] environmental conditions. However, the isolation of Tonga from
international trade routes coupled with distance from markets make large scale diversification unlikely in the near future.

423 Fundamental in the economy of any agricultural nation is the
[643] policy formation regulating land use by the native element. In
Tonga, ultimate title to all land rests with the King. However, every individual is entitled to an eight and one-qaurter acre farm lot and a two-fifths acre town lot. Obviously, in light of the growing population situation, the plan cannot work as the policy intends. However, in the past the policy had the effect of allowing most people the opportunity to plant and earn a subsistence
423 living from the earth. The law, at present, states that males
641 upon reaching 16 years of age are required to register with the
[651] government for tax purposes. At the same time, all are invited to

102: Brierly T-3 (1850) 1852
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VI.—*Brief Geographical Sketch of the Friendly Islands, with an Account of the Visit of H.M.S. Meander, Captain the Hon. Henry Keppel, to the Island of Tongatabu, June,* 1850. By O. W. Brierly, Esq., F.R.G.S.

Read December 8, 1851.

The *Friendly Islands.*—The Friendly or Tonga Islands consist of three separate groups, and are situate in the Pacific, between 18° and 23° S. latitude, and 173° and 176° W. longitude. 131

There are said to be in all more than 150 islands; 15 of which rise to a considerable height, 35 are moderately elevated, and the rest are low. 133

The most southern group (the Tongatabu Islands) was discovered by Tasman in 1643. The Island of Tongatabu is the largest of these, and is about 20 miles long by 10 wide at its broadest part. The general surface of the island, with the exception of a few hillocks varying from 30 to 40 feet in height, is nearly a dead level; the highest part of the island is a small mount about 60 feet above the level of the sea on the northern side. [175]

The Central, or Haabai Group, is composed of a considerable number of small islands, the most populous being Lifuka, about 8 or 9 miles long by 4 broad. The islands of this group are very fertile, some of them are low, others are of considerable height, and among the latter are Tofua and Kao. Tofua has an active volcano.

The Vavau Islands form the most northern group, and are somewhat larger and higher than the Haabai Islands. Vavau is a fine island, about 36 miles in circumference; its surface is uneven, and on the northern side it rises to considerable elevation.

The climate of the Friendly Islands is humid, and the heat rather oppressive, rising frequently to 98° in the shade. Much rain falls periodically. The trade winds are not constant, and westerly winds occasionally blow in every season. 132

Very heavy dews fall at night, and the transitions from heat to cold are very sudden. Hurricanes are frequent, scarcely a season passing without them. The months of February and March are those in which they occur, but they have been known to take place in November and December.

The storms begin at N.W., going round to the E., and ending in S.E.; the wind continues to increase until it becomes a hurricane, and is frequently observed to change almost immediately from one point to the opposite. In the same group of islands trees have fallen during one gale, some to the S. and others to the N. Earthquakes are also frequent. 133

102: Brierly T-3 (1850) 1852
OU9 Tonga OU9
Tongatapu

own people, and finds sufficient employment in attending to his 643
duties as King without meddling in trade. He is one of the best [439]
sailors among the Tongaese, and has frequently shown remarkable [157]
coolness and presence of mind in situations of danger. When we
were at Tongatabu he was about to build a jetty over the reef at
the anchorage. He does not smoke, and his example is generally 276
followed by his people, smoking being considered as a mark of [643]
dissipation. At one time, however, it prevailed to a great extent,
nearly every man and woman, and even many children, smoking [178]
whenever they could get tobacco. The use of it is discouraged [177]
by the missionaries, but I imagine that some of the natives still [747]
secretly indulge in it, for while I was sketching one day a young
woman came up to me, and, first looking cautiously around,
inquired in a confidential whisper if I had any tobacco, at the same
time showing me a short black pipe.

Canoes.—The model exhibited will serve to show the construction 501
of these better than any description. They are steered with
a large paddle on the lee quarter, and it will be seen that the
lower part or foot of the sail is secured to a spar in the same manner
as the sails of the "America" yacht. King George's canoe
is 90 feet long, the sail being 90 feet high and 60 feet wide at the
top. These large double canoes will carry as many as 200 men.

In 1847 King George, fearing that the French might interfere 643
with him, wrote a letter to the governor of New Zealand, requesting 648
that he might with his people be received as subjects of the
British crown.

I would venture to remark that it must be of advantage to cultivate 000
friendly relations with the inhabitants of all such islands as
are desirous of being connected with us, more especially as it may
be very desirable to form depôts for our steamers at some of the
islands. It has been exceedingly difficult for me to draw a line 121
between the geographical and the ethnological in this paper, as
they are so intimately connected; but I trust by this simple narration,
illustrated by the pencil, that many, who would have no taste
for a voyage of 12,000 or 15,000 miles, will in some measure
realize the condition of our antipodean fellow men; and it is to be
hoped that in a comparatively few years the connexion existing
between our Australian colonies and the mother country may also
include these beautiful and fertile islands.

Sailing Directions for entering Tongatabu.

Having no map of Tongatabu, or any knowledge of the place, we were in doubt 122
as to which was the proper entrance to the anchorage, and the following sailing 114
directions were afterwards kindly given me by Mr. May, master of the Meander,
as the result of his observation upon going in.

When the northern point of Eua bears S., steer direct for the small island of Eua 131
Eki, on nearing which several small islets will be observed immediately to the 133

102: Brierly T-3 (1850) 1852
OU9 Tonga OU9
Tongatapu

131

133 northward and westward of it, and the eastern point of Tongatabu will then be clearly seen, and cannot be mistaken. Abreast of Eua Eki we picked up a native [502] pilot, and bore up for the opening between that island and the E. point of Tongatabu, which is the entrance to the anchorage on the northern side of the island.

133 No stranger should attempt this passage without a pilot; and at first sight it appears almost impossible to take a ship through the different windings between the coral reefs.

In running up you have the shore of Tongatabu on the left hand, and a number of small wooded islets on the right; all the shores being edged with coral reefs, which are generally breaking, and for the most part dry at low water. About halfway through the channel there is an awkward turn, with two sunken rocks in the centre, contracting the channel to less than a cable's length, steep until you pass to the westward of these rocks. With the exception of this turn, the channel is of good width, and within the passage it spreads out into an apparently clear, broad sheet of water, edged on the outside by small islets.

The Meander ran in and anchored within 400 yards of the edge of the flat reef which runs off the shore, just abreast of the church, in 17 fathoms water; sandy bottom. There are no high leading marks for the passage; but from the bowsprit-end or fore-yard all the dangers may be seen. With the danger from sunken rocks, no ship could work through the turns; and the passage should never be attempted without a commanding fair wind, the tide setting in different directions over and between the coral reefs.

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VII.—*Notes on the Distribution of Animals available as Food in the Arctic Regions.* By Augustus Petermann, Esq., F.R.G.S., &c.

Read Feb. 9, 1852.

The occurrence of animals in the Arctic Regions, and its bearing on the missing expedition under Sir John Franklin, is a subject which has of late excited a good deal of interest, and has given rise to the most conflicting and contradictory opinions: some maintaining the existence of animals in the Arctic regions in great numbers, affording abundance of food to man; others as stoutly insisting upon the extreme scarcity, if not total absence, of them.

On entering, however, into an analysis of all that has been said and written on this point, it appears that a too confined view has been generally taken of the subject. Individual observations in certain localities have been separately considered and reasoned upon for the entire region, and these localities only related to a comparatively small space on the American side, the whole Asiatic side of the Polar basin not being taken into account at all. Again, it has been commonly assumed that with ascending latitudes temperature descended, and animal and vegetable life decreased, attaining their minima at the Pole. Nothing could be more fallacious than such an hypothesis in a region where the temperature corresponds less with latitude than in any other part of the globe. When, therefore, the shores and waters of Wellington Channel were found to be "teeming with animal life," it was regarded as a wonderful fact that more animals should be found in that region than in those to